2024

RESEARCH, DEVELOPMENT, AND EXTENSION

YEAR-END

In-House Review

USM RDE: INNOVATING SOLUTIONS FOR MODERN CHALLENGES

November 28-29, 2024
Commercial Building
University of Southern Mindanao
Kabacan, Cotabato

This serves as invitation

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OFFICE OF THE PRESIDENT

Message

As we close another fruitful year, it is fitting to reflect on the strides we have made in USM Research, Development, and Extension (RDE). Guided by our vision, mission, and RDE Framework, we remain steadfast in our commitment to creating meaningful change.

Why do we pour immense effort into research if it fails to benefit those who need it most? The answer lies in our purpose. As researchers and extensionists, we have been entrusted with the privilege—and the responsibility—to uplift the lives of our fellow Filipinos. Our work has the power to transform challenges into opportunities, and we must embrace this mission wholeheartedly.

In today's rapidly evolving world, modern challenges such as climate change, technological disruption, and socioeconomic inequality demand innovative solutions. Through collaborative efforts, our research can bridge gaps, address pressing issues, and contribute to sustainable progress. This underscores the importance of teamwork.

As we move forward, let us hold onto our collective purpose, knowing that the journey is as meaningful as the destination. May we continue to strive for excellence and make a difference in the lives of others.

May this year-end review rekindle our passion and renew our commitment to our mission.

Let us join hands to innovate solutions for modern challenges. May God bless us all.

FRANCISCO GIL N. GARCIA, PhD
SUC President IV

RDE YEAR-END IN-HOUSE REVIEW PROGRAM 2024

GENERAL SCHEDULE OF ACTIVITIES

November 28, 2024 (Thursday)

TIME	ACTIVITY
7:30 AM – 8:30 AM	Registration
8:30 AM – 9:15 AM	Opening Program
9:30 AM – 11:40 PM	Presentations
11:40 AM – 12:00 PM	Poster Viewing
12:00 NN – 1:00 PM	Lunch Break
1:00 PM – 5:00 PM	Presentations

November 29, 2024 (Friday)

TIME	ACTIVITY
7:30 AM – 8:00 AM	Registration
8:00 AM – 12:10 PM	Presentations
12:10 PM – 1:30 PM	Lunch Break
2:00 PM – 3:00 PM	Closing Program

Opening Program

Commercial Building
November 28, 2024
8:30 AM

National Anthem	**Rahima A. Cabunto**
Invocation	**Tamie C. Solpot, PhD** **Arnabie Murray**
Bagong Pilipinas Hymn	**Rahima A. Cabunto**
Welcome Remarks	**Debbie Marie B. Verzosa, PhD** Vice President for RD&E
Message of the President	**Francisco Gil N. Garcia, RPAE PhD** SUC President IV
Rationale	**Ma. Teodora N. Cabasan, PhD** Director, Research Publication Services Office Over-all Coordinator, In-House Review
Presentation of Evaluators	**Glyn G. Magbanua, PhD** Director, Extension Services Office

EMCEE: Charlotte Andrea Tutor

Closing Program

Commercial Building
November 29, 2024
2:00 PM

SYNTHESIS PRESENTATION	
SESSION 1	**MR. JOHN ALDRIN I. SANAMA** EPS I
SESSION 2	**MR. JAYSON S. BALTAZAR** EPS I
SESSION 3A	**MS. ZAIBEL ROSE TAMON** Research Assistant
SESSION 4B	**MS. KARIZZA JANE PEJANER** Faculty, PPALMA
PRESENTATION OF OUTPUT FOR USMARD CENTER RESEARCH	**JURHAMID C. IMLAN, PhD** Director, USMARD Center
PRESENTATION OF OUTPUT FOR EXTENSION	**GLYN G. MAGBANUA, PhD** Director, Extension Services
PRESENTATION OF OUTPUT FOR COLLEGE-BASED RESEARCH	**LYDIA C. PASCUAL, PhD** Director, Research and Development
PRESENTATION OF OUTPUT FOR PICRI RESEARCH	**DEBBIE MARIE B. VERZOSA, PhD** Vice President, RDE
PRESENTATION OF RDE OUTPUTS	**DEBBIE MARIE B. VERZOSA, PhD** Vice President, RDE
ACCEPTANCE OF RDE OUTPUTS	**FRANCISCO GIL N. GARCIA, RPAE, PhD** SUC President IV
CLOSING MESSAGE	**FRANCISCO GIL N. GARCIA, RPAE, PhD** SUC President IV
CLOSING PRAYER	**TAMIE C. SOLPOT, PhD** Faculty Researcher

***EMCEE*:** Janice M. Bangoy

EVALUATORS

Session I

Basic Research Category

Dr. Naomi G. Tangonan

Dr. Sailila E. Abdula

Dr. Romulo L. Cena

Session II

Applied Research & Development Category

Dr. Emma K. Sales

Dr. Josh Elisha R. Octura

Dr. Elizabeth D. Malacad

Session IIIA

Extension Category

Dr. Lorna G. Valdez

Mr. Roberto A. Cambel, Jr.

Dr. Samsia A. Ibrahim

Session IIIB

Social Research Category

Dr. Lorna G. Valdez

Mr. Jerome Bactol

Dr. Mervin G. Gascon

MODERATORS

Session I (Basic)

AM- Nov. 28 & 29, 2024
Kim Abellanosa (RDE)
Anamarie Uyangurin (CASS)

PM- Nov. 28 & 29, 2024
Marilyn P. Calub (CEIT)
Khris June Callano (CA)

Session II (Applied)

AM - Nov. 28 & 29, 2024
Hannah Lou Diez (RDE)
Roland Fajardo (CVM)

PM - Nov. 28 & 29, 2024
Josephine R. Flores (CVM)
Joeseph Quisado (CA)

Session IIIA (Extension)

AM - Nov. 28, 2024
Rahima A. Cabunto (RDE)

PM - Nov. 28, 2024
Saima M. Andil (IMEAS)

Session IIIB (Social)

AM - Nov. 29, 2024
Benjie Mari (RDE)

Day 1 - November 28, 2024

*The highligted projects in green color are the competing projects				
7:30 AM	8:30 AM	**Registration**		
8:30 AM	9:15 AM	**Opening Program**		
		BASIC RESEARCH (SESSION I)	**APPLIED & DEVELOPMENT RESEARCH (SESSION II)**	**EXTENSION (SESSION IIIA)**
9:30 AM	9:50 AM	101 - Developing Sustainable Agricultural Environment through the Organization of Durian Producers in Mindanao, Philippines Mel Chrisel Sales	201 - Biological diagnostic tool for vulnerable agroecosystems: nematode community analysis as an approach to assess sustainability of agricultural practices Ma. Teodora N. Cabasan & Bryan Lloyd Bretana	301 - BIO-NIHAN Para sa Kalikasan: Promoting Holistic Biodiversity Conservation Through Community Partnership Bryan Lloyd P. Bretana, Cromwel M. Jumao-as, Cherie Cano-Mangaoang, & Florence Roy P. Salvana
9:50 AM	10:10 AM	102 - Comprehensive Assessment of Watershed Dynamics: Evaluating Ecosystem Characteristics, Land Use/Land Cover Changes, Hydrologic Patterns, Soil Erosion Rates, and Conservation Priorities in the Libungan-Alamada Watershed, Philippines Jennet R. Mag-aso and Rezin G. Cabantug	202 - NICER Project 1 - Molecular Fingerprinting of Cacao Parental Recommended HYVs and True Criollo Ensuring Multiplication of Quality Planting Materials (QPMs) for Increased Profitability Edward A. Barlaan	302 - BIO-NIHAN para sa kalikasan in Columbio: Sustainable initiatives for Biodiversity Conservation Cromwel M. Jumao-as, Cherie Cano-Mangaoang, Florence Roy P. Salvana, Bryan Lloyd P. Bretana & Elvie V. Diaz
10:10 AM	10:30 AM	103- Characterization of Inland Capture Fishery and Rapid Assessment of Fish Abundance and Diversity of Liguasan Marsh in Cotabato Province Leonila V. Papalid	203 - NICER Project 2 - Upgrading of the Cacao Gene Bank for Conservation and Management in Cacao Varietal Improvement Gwen Iris D. Empleo and Ivy M. Pasquin	303 - Organic Corn Seed Production in Brgy. Saniag, Ampatuan, Maguindanao del Sur Mary Joy S. Canolas, Efren E Magulama, Nenita E. Olero, Janice M. Bangoy
10:30 AM	10:40 AM	BREAK		
10:40 AM	11:00 AM	104 - Water Quality Assessment and Characterization of Lake Buluan: A Comprehensive Analysis of Physicochemical Parameters, Heavy Metal Contamination and Biological Assessment Ronielyn F. Pinsoy, Jeconi Joice T. Paler & Carmee May L. Balneg	204 - NICER Project 3A - Development of Optimized PostHarvest Processing Approaches for Improved Quality of Cacao Beans Renel M. Alucilja	304 - Re-echo Training to Farmer's Cooperatives/Associations on Soil Sampling, Analysis, and Fertilizer Management in the Provinces of Maguindanao del Sur, Maguindanao del Norte, and SGA. Mary Joy Canolas
11:00 AM	11:20 AM	105 - Characterization of Inland Capture Fishery in Lake Buluan: Rapid Assessment of Fish Abundance and Diversity Stephen Dave M. Dupo, Carmee Lyn B. Paylangco, & Mark Julius C. Seloterio	205 - NICER Project 3B - Optimization and Standardization of Conventional Post-harvest Processes and Physicochemical Analysis for Improved Cacao Bean Quality Sheena B. Lucena	305 - Scholarship Presenting Advanced Research Knowledge (SPARK) Mary Joy S. Canolas & Allan C. Facurib

11:20 AM	11:40 AM	106 - Assessment and Modeling of Land Use/ Land Cover, Soil Quality, Flora and Fauna in the Tampakan-Lutayan Watershed as Tributary of Lake Buluan Dhealyn Decee V. Sabit & Jesabell O. Sambile	206 - Land Management Of Rubber- Based Systems In Southern Philippines: Effective Rubber-Based Cropping System in Southern Philippines Rezin G. Cabantug	306 - Going Bananas - Restoring Livelihood of Conflict Farmers in Cotabato Rezin G. Cabantug
11:40 AM	**12:00 PM**	**POSTER VIEWING**		
12:00 PM	**1:00 PM**	**LUNCH BREAK**		
1:00 PM	1:20 PM	107- SNAP Testing Assay for Screening Antibiotic Residues in Milk Elma G. Sepelagio and Cyrelle M. Besana	207 - Development of Cost and Effective Pest and DIsease Management of Rubber and Intercrops Elorde Jr. Crispolon	307 - Capability Building of Rubber Stakeholders and Role of Women and their Children Natural Rubber Industry in Agusan del Sur and North Cotabato Mary Rodelyn Cariaga
1:20 PM	1:40 PM	108 - Development and Evaluation of Corn (*Zea mays* L.) Microgreen-based Products Metche Anne C. Logronio, Lorelyn Joy N. Turnos-Milagrosa and Mark Al-Jamie J. Muttulani	208 - Developing Land Management Options for Diverse Cacao-Based System in Mindanao Mel Chrisel Sales	308 - Safe Spaces: Fighting Sexual Harassment through Education and Empowerment Mariz P. Balquin, Rolly C. Sotto & Vicente Delos Reyes
1:40 PM	2:00 PM	109- Technological Innovation and Value Addition Through Product Diversification of High-Value Crops for Halal Cosmetics and Supplements Queennie L. Rufino, Liezl Gray Oria, Marivic D. Candari, Jurhamid C. Imlan, Sandra Joy P. Pahm and Mary Ann B. Rama	209 - Commercialization of Chevon Food Products and Standardization of Processing Center Jalaloden B. Marohom	309 - Building Capacities of Barangay People for Community Development (BALABAG) Dhealyn Decee Sabit
2:00 PM	2:20 PM	110 - Fruit Quality Improvement in 'Carabao' Mango Through Identification of Genes for Scab and Stem-end Rot Resistance by Genotyping-by-Sequencing (GBS) and Genome Wide Association Studies (GWAS) Edward A. Barlaan & Joan P. Sadoral	210 - Zinc oxide nanoparticles for seed priming and nano foliar fertilizer Lydia C. Pascual	310 - Collaborative Networking and Engagement for Community Transformation (CONNECT) Janice M. Bangoy, Ritchel O. Torres & Diether M. Barro
2:20 PM	2:40 PM	111 - Phenotyping of Multi-cross Corn Hybrids and Synthetics with Tolerance to Herbicide Jessie Elarde, Efren Magulama, Nenita Olero and Edward A. Barlaan	211 - Production innovation for coffee and cacao beverages Lorelyn Joy N, Turnos-Milagrosa, Abubakar A. Murray, Sedra A. Murray & Mark Al-jamie Muttulani	311 - CASAMA - Comprehensive Assistance and Services Authentic and Meaningful Section-Phase 2: Utilization of Local Coconuts Fruits for VCO Enhance Soap Cherie Mangaoang & Marivic Candari
2:40 PM	3:00 PM	**BREAK**		

3:00 PM	3:20 PM	112 - FOOD FOR LIFE 3.0: Environmental and Hormonal Manipulations of Fishes in Ligawasan Marsh for Improved Breeding Florence Roy P. Salvaña, Cyrelle M. Besana and Pia Amabelle M. Flores	212 - HEIRIT: Establishment of USMART Technology Business Incubator - A DOST Funded TBI Jalaloden B. Marohom, Maricel G., Dayaday, Danilyn A. Flores, Nerissa G. Dela Viña, Romiel John P. Basan	312 - Establishment of Instrumentation System Modeling, Assembly and Response Testing (iSMART) Laboratory Maricel G. Dayaday
3:20 PM	3:40 PM	113 - Enhancing Adlai Farming Techniques through Precision Agriculture Shieryl P. Ortiza, Efren Magulama and Renel M. Alucilja	213 - Smart cacao Budwood Nursery and Greenhouse for Production of High-Quality Planting Materials Edward A. Barlaan, Maricel G. Dayaday & Renel M. Alucilja	313 - CBDEM - Delicacies: Capacity Building, Demonstration and Enterprise Development of Maguindanaon Delicacies Roy B. Gacus, Francisco Gil N. Garcia, Esmaira G. Gunsayan, April Geraldine M. Quinonero, Analyn A. Gonzales & Irving T. Fajarito, Jr.
3:40 PM	4:00 PM	114 - Harnessing Rhizobacteria and Actinomycete's Potential as Biofertilizer and Biocontrol Inputs Supportive of Strengthening the Organic Agriculture Industry (HaRBIS-Organic) Mel Chrisel A. Sales, Ma. Teodora N. Cabasan, and Neil Pep Dave N. Sumaya	214 - Towards Commercialization: HalalPlant Based Concoctions as Nutrient Sources for Crucifers and Solanaceous Vegetable Crops Through Field Validation and Market Analysis Jhon Dave E. Llanto, Mark Al-Jamie J. Muttulani and Lorelyn Joy N. Turnos-Milagrosa	314 - CORN PLUS: Promotion of USM OPV Corn through the Adoption of Organic Production Nenita E. Olero & Janice M. Bangoy
4:00 PM	4:20 PM	115 - Water Quality Assessment and Characterization of Liguasan Marsh in Cotabato Province: A Comprehensive Analysis of Physico-Chemical Parameters, Heavy Metal Contamination, and Biological Assessment Lydia C. Pascual & Debbie Marie B. Verzosa	215 - Market Analysis and Innovation of Cacao Based Products for Commercialization Analyn A. Gonzales,Harem R. Roca, Jane R. Desamito, Sandra Joy Pahm and Esmaira G. Gunsayan	315 - USM T.O.U.R.S. (Travel Odyssey: Unveiling Rich Sights) Meldred F. Samblaceno, Dianne Cristel M. Basilio & Rosyell Angelo N. Piosca
4:20 PM	4:40 PM	116 - Characterization and Performance of Ten (10) Promising Varieties of Cacao in Different Agro-Climatic Zones in the Philippines: Project 1. Yield and Bean Quality Evaluation of Ten (1) Promising Cacao Varieties in Type II and Type III Agroclimatic Zones in Northern and Southern Mindanao Ardniel A. Baladjay & Sheena B. Lucena	216 - Project Title: Response Surface Optimization of Cereal-based Patty and Kroepek for Enhanced Acceptability and Market Assessment Maribelle T. Piamonte, Ivy Mar B. Cabornida and Analyn A. Gonzales	316 - Towards a healthy well-being: Psychoeducation and Psychosocial Intervention for High scoring high school students in DASS21 in Kabacan, Cotabato Myka Ivana O. Sorilla
4:40 PM	5:00 PM	117 - Hybridization of Rubber (*Hevea brasiliensis*) Towards Development of High-Yielding and Disease-Resistant Clones Janice Bangoy, Sheena Lucena, Marry Grace Balbuena & Jasmin Pecho		317 - Infograp ng mga Impormasyon Hinggil sa Halaga, Tamang Pamamaraan at Benepisyo ng Pagpapasuso: Isang Teknikal Na Pagsasalin sa Wikang Teduray Radji Macatabon

DAY 2- NOVEMBER 29, 2024				SOCIAL (SESSION IIIB)
8:00 AM	8:20 AM	119 - Molecular validation of USM-Developed corn varieties (USM 5,6,10) Marry Grace S. Balbuena	219 - SMART SNACKS: Creating Innovative & Affordable Snacks with Healthy Options Janice M. Bangoy, Maybell S. Martin, Leila S. Moscoso	319 - Assessment of Socioeconomic Status of Communities in the Liguasan Marsh in Cotabato Province Francisco Gil N. Garcia and Romiel John P. Basan
8:20 AM	8:40 AM	120 - Molecular Identification and Control of Brown Leaf Malady of Selected Fruit Crops Clark I. Maarat, Jasmin A. Pecho, Marry Grace Balbauena & Tamic C. Solpot		320 - Mapping the Future Plate: Evaluating the Spatiotemporal Dynamics of Meso-Level Food Security (MFS) of Cotabato Province in Changing Climate Romiel John P. Basan
8:40 AM	9:00 AM	121 - Breeding of White OPVs, Glutinous, and Sweet Corn for Herbicide Nenita Olero, Jessie Elarde, Efren Magulama and Monaira Sumael	221 - Optimization of The Production of Biochar from Coconut and Animal Waste Jurhamid C. Imlan and Rezin G. Cabantug	321 - Inclusive Social Services in Local Government Units and Public Higher Education Institutions (HEIs) in Cotabato Province Jhon Dave Llanto
9:00 AM	9:20 AM	122 - Breeding of Corn Varieties with Climate Change Resilience: Drought Resistance Nenita E. Olero	222 - USM Center for Flood/ Landslide Preparedness and Mitigation (IDD) Cristopher Benito	322 - Assessment of Socio-economic Status of Communities in Lake Buluan April Geraldine M. Quiñonero, Ma. Karysa F. Garcia, Jessa May M. Versola
9:20 AM	9:40 AM	123 - Pre-Harvest Treatment on the Productivity of Yellow Passion Fruit Under Kabacan Cotabato Condition Sandra Joy P. Pahm	223 - Productivity Assessment of Robusta Coffee Applied with Organic and Inorganic Fertilizers in Mindanao Leandreux Ocasion	323 - Unveiling Patterns: Data Analytics Approach to Understanding Student Success in USM College Entrance Exams Janice T. Palmaera, Elizabeth R. Genotiva & Arjay S. Agbunag
9:40 AM	9:50 AM	Break		
9:50 AM	10:10 AM	124 - Characterization of Palm Oil Products Using GC-MS and FTIR and its Potential Application for Bio-Plasticizers Marivic Candari, Nikki Jane Benito and Queennie L. Rufino	224 - Indigenous Phosphorus and Potassium Solubilizing Microorganisms as Potential Enhancer of Phosphorus and Potassium Nutrient Uptake of Corn Maria Elena N. Tanabe & Leandreux Ocasion	324 - Examining Input, Output and Outcome Indicators of Higher Education Towards Data-Driven Quality Improvement Francisco Gil N. Garcia, Lawrence Anthony U. Dollente, Willie Jones B. Saliling, Romiel John P. Basan & Kharlo J. Subrio

10:10 AM	10:30 AM	125 - Breeding of Elite Durian Cultivar for Improved Fruit Characteristics and Asexual Propagation of Musang King Cultivar Jurhamid C. Imlan and Sheena Lucena	225 - Project 1. Regional Intellectual Property and Technology Business Management (IPTBM) in SOCCSKSARGEN through the RAISE Program. Pia Amabelle Flores, Cyrelle Besana and Julius Jerome Ele	325 - Dokumentasyong Manobo Kalamansig Radji A. Macatabon
10:30 AM	10:50 AM	126 - Optimization and Validation of USM Developed Biostimulant for Dragon Fruit Production Jasmin A. Pecho	226 - Enhancement of the Agri-Aqua Technology Business Incubator (ATBI) in University of Southern Mindanao (USM) Through The Raise Program Pia Amabelle Flores	326 - Assessment of the Integration of Gender and Development (GAD) Concepts Across General Education Courses in Selected SUCs in Region XII April Rose Butalid
10:50 AM	11:10 AM	127 - Assessment of Durian Clone Variability: A Study on Yield Performance in USM Established Orchard Janice M. Bangoy	227 - Establishment of Regional Agri-Business Hub (ABH) in SOCCSKSARGEN through the Raise Program Ronald Z. Pascual	327 - Project Title: PCC's Dairy Box and Family Module: Success Stories, Challenges and Ways Forward Glyn B. Gabano-Magbanua, Estella B. Barbosa, Marlyn A. Resurreccion & Anamarie B. Uyangurin
11:10 AM	11:30 AM	128 - Screening for Resistance and Fungicide for Pestalotiopsis Leaf Spot disease of Coffee Bernadith Borja & Tamie C. Solpot	228 - Project 4: Establishment of Regional Knowledge Management (KM) Hub in SOCCSKSARGEN through the RAISE Program. Josephine Migalbin	328 - Satellite SERDAC: Establishment of Satellite SocioEconomic and Data Analytics Center (SERDAC) at the University of Southern Mindanao to Strengthen Capacity in Socio-Economic Research and Analytics in the Region Romiel John P. Basan
11:30 AM	11:50 AM	**POSTER VIEWING**	229 - Developing Rapid and Affordable Soil Nutrient Test Fertilizer Formulation for Rubber Cropping System Leandreux Ocasion	329 - USM futures thinking program: Food and health security, systems, innovation, and sustainability Francisco Gil N. Garcia, Edward A. Barlaan & Ma. Teodora N. Cabasan
11:50 AM	12:10 PM		**POSTER VIEWING**	330 - Empowering Equity Target Students: Enhancing Access and Success across SUCs in Region XII Francisco Gil N. Garcia, Marcos F. Monderin, Romiel John P. Basan, Ronielyn F. Pinsoy, Lawrence Anthony Dollente, Estella Barbosa, Vilma Santos, Metche Anne Logronio, Stephen Tinambunan, John Carlo Villarin & Stella Lasquite
12:10 PM	12:30 PM			**POSTER VIEWING**
12:30 PM	1:30 PM	**LUNCH BREAK**		

2:00 PM	3:00 PM	**CLOSING PROGRAM**

VISION

USM envisions upholding its status of excellence in Research and Development by continuing to be the pioneer source of technology and information that are on track towards poverty reduction, food security, and global competitiveness for cohesive and sustainable development among its multi-socio-cultural clienteles.

MISSION

To put into operation a system to undertake multi-disciplinary approach for R & D activities to ensure that technologies and information generated can address the prevailing concerns and issues in the local, regional and national levels for sustainable development.

GOALS

- Improve the system with scientific excellence through collaborative and interdisciplinary R&D activities that are anchored on the University's vision/mission;
- Conduct researches and generate technologies that could provide solutions and address the local, regional, and national concerns and issues;
- Provide a mechanism to ensure that research results be effectively and efficiently delivered to the clients for utilization and commercialization; and
- Build up resource generation facilities for continuous and sustainable R&D programs that geared towards ensuring food security, global competitiveness, socio-cultural responsiveness that eventually improve the quality of life of the clienteles.

RDE YEAR-END IN-HOUSE REVIEW
November 28-29, 2024

2024

RESEARCH, DEVELOPMENT, AND EXTENSION

MIDYEAR

In-House Review

July 25, 2024
Commercial Building
Kabacan, Cotabato

This serves as invitation

rpso@usm.edu.ph www.usm.edu.ph/rde

RATIONALE

This Research Development & Extension (RDE) Agency In-House Review is an annual/yearly activity of the University. The main objective is to review and evaluate all on-going and completed Research Development and Extension Programs/Projects/ Studies. This serves as avenue for all researchers, extension workers and other stakeholders to convene and exchange new knowledge or products generated and development/extension strategies relevant to the University's vision, mission, and objectives. It is also through this activity that investments in RDE can be appraised thoroughly to ensure that RDE activities are geared toward addressing the needs and problems of the clientele of the university in its service area, in particular, and in the national level in general, for sustained agricultural development and its allied fields. Expectedly, very active interactions will form part of the highlights.

OBJECTIVES

1. To evaluate completed and on-going RDE projects/activities particularly with regard to the attainment of objectives and adherence to the approved programs;

2. To identify problems met during the implementation and recommend specific courses of action, i.e. continuation, extension, modification of planned activities and methodology, suspension, termination, etc., in compliance with the recommendations of the evaluating panel;

3. To identify technologies generated for field testing, verification, and piloting before its final dissemination/promotion and commercialization;

4. To identify mature technologies ready for packaging and dissemination;

5. To identify significant results for policy formulation and development;

6. To identify new researchable areas; and

7. To record and monitor both in-house and externally funded researches.

GENERAL SCHEDULE OF ACTIVITIES

July 25, 2024

TIME	**ACTIVITY**
7:00 AM – 8:00 AM	Registration
8:00 AM – 8:45 AM	Opening Program
9:00 AM– 12:00 NN	Presentation of RDE Output
12:00 NN – 1:00 PM	Lunch Break
1:00 PM – 4:00 PM	Presentation of RDE Output
4:30 PM – 5:00 PM	Closing Program

OPENING PROGRAM

National Anthem Invocation	**LODY JAEL SALINAS** Staff, Research Ethics
Christian Prayer	**KHARLO G. SUBRIO** EPS II
Muslim Prayer	**NORHIDEN P. MASIO** Staff, Futures' Thinking
Cotabato Hymn Kabacan Hymn	**AVP**
Welcome Remarks	**DEBBIE MARIE B. VERZOSA** VP, Research, Development and Extension
Message	**FRANCISCO GIL N. GARCIA** SUC Pres IV
Rationale	**LYDIA C. PASCUAL** Director, Research Development Office
Presentation of Evaluators	**GLYN G. MAGBANUA** Director, Extension Services Office
EMCEE:	**JOHN LEONARD LATIDO**

EVALUATORS

Session I

Basic Research Category

Dr. Naomi G. Tangonan

Dr. Tamie C. Solpot

Dr. Elizabeth C. Molina

Session II

Applied Research and Development Category

Dr. Emma K. Sales

Dr. Elorde S. Crispolon Jr.

Mr. Bryan Lloyd P. Bretaña

Session III

Social Research and Extension Category

Dr. Lorna G. Valdez

Dr. Leorence C. Tandog

Dr. Ardniel A. Baladjay

MODERATORS

Session I - Basic Research

AM – Joeseph S. Quisado

AM – Ellen Joy Farala

PM – JP E. Fortinez

PM – Vinus P. Java

Session II - Applied Research and Development Category

AM – Marilyn P. Calub

AM – Ruben Tagare Jr.

PM – Nor-aine M. Corpuz
PM – Josephine R. Flores

Session III – Social Research and Extension Category

AM – Estella B. Barbosa

AM – Norquez M. Mangindra

PM – Saima M. Andil

PM – Rowell N. Nitafan

		BASIC RESEARCH	APPLIED RESEARCH / DEVELOPMENT	SOCIAL RESEARCH/ EXTENSION
7:00 AM	**8:00 AM**	**Registration**		
8:00 AM	**8:45 AM**	**Opening Program**		
9:00 AM	9:10 AM	101- Optimization and Validation of USM Developed Bio-stimulant for Dragon Fruit Production Jasmin A. Pecho	201 - RAISE Project 1. Regional Intellectual Property and Technology Business Pia Amabelle Flores, Julius Jerome G. Ele, & Cyrelle M. Besana	**SOCIAL RESEARCH** 301 - Mapping the Future Plate: Evaluating the Spatiotemporal Dynamics of Meso-Level Food Security (MFS) of Cotabato Province in Changing Climate Romiel John Basan
9:10 M	9:20 AM	102 - Characterization and Performance of Ten (10) Promising Varieties of Cacao In Different Agro Climatic Zones in the Philippines Ardniel A. Baladjay & Sheena B. Lucena	202 - Raise Project 3a. Enhancement of the Agri-Aqua Technology Business Incubator (ATBI) in University of Southern Mindanao (USM) Through The Raise Program Pia Amabelle Flores	302 - Dokumentasyong ng Manobo Kalamansig Radji A. Macatabon, Normie G. Pabinal, Rosemarie R. Sison, & Jovelyn Gesulga
9:20 AM	**9:30 AM**	**Open Forum**		
9:30 AM	9:40 AM	103 - Development of Corn Hybrids and Synthetic with Tolerance to Herbicide Jessie G. Elarde, Nenita E. Olero, Efren E. Magulama, & Edward A. Barlaan	203 - RAISE PROJECT 4. Establishment of Regional Knowledge Management (KM) Hub in Soccsksargen through the Raise Program Josephine R. Migalbin	303 - Leaving No One Behind: Examining Disability-Inclusive Social Services in Local Government Units and Public Higher Education Institutions (HEIs) in Cotabato Province Jhon Dave E. Llanto, Lian D. Bagonoc & Victor C. Dapon
9:40 AM	9:50 AM	104 - Breeding of Corn Varieties with Climate Change Resilience: Drought Resistance Nenita E. Olero	204 - Development and Characterization of Halal Feeds for Broiler Chicken Production Jurhamid C. Imlan	304 - Assessment of the Integration of Gender and Development (GAD) Concepts Across General Education Courses in Selected SUCs in Region XII April Rose T. Butalid, Estella B. Barbosa & Elangbai B. Dimasingkil
9:50 AM	**10:00 AM**	**Open Forum**		
10:00 AM	10:10 AM	105 - Breeding of White OPVs, Glutinous, and Sweet Corn For Herbicide Nenita E. Olero, Jessie G. Elarde & Monaira Sumail	205 - Smart Cacao Budwood Nursery and Greenhouse for Production of High-Quality Planting Materials Edward A. Barlaan, Renel M. Alucilja & Maricel G. Dayaday	305 - Program title: Examining input, output and outcome indicators of higher education towards data-driven quality improvement Francisco Gil N. Garcia, Lawrence Anthony U. Dollente, Willie Jones B. Saliling, Romiel John P. Basan, Jennet P. Mag-Aso, Hazel Ann S. Soriano, Kharlo J. Subrio, Liezl Gray Oria, Marry Grace S. Balbuena, Jessie G. Elarde, & Peny Lane E. Vallejos

10:10 AM	10:20 AM	106 - Molecular Validation of USM-Developed Corn Varieties (USM 5,6,10) Marry Grace S. Balbuena	206 - NICER Project 1: Molecular Fingerprinting of Cacao Parental Recommended HYVS and True Criollo Ensuring Multiplication of Quality Planting Materials (GPM) for Increased Productivity and Profitability Edward A. Barlaan	306 - Project Title: PCC's Dairy Box and Family Module: Success Stories, Challenges and Ways Forward - Study 1: The Dairy Box: A Collective Experience of Success and Resilience -Study 2: Impact of PCC's Sustainable Livelihood Program Among Household Beneficiaries in Mindanao Philippines Glyn B. Gabano-Magbanua, Estella B. Barbosa, Marlyn A. Resurreccion & Anamarie B. Uyangurin
10:20 AM	**10:30 AM**	**Open Forum**		
10:30 AM	10:40 AM	107 - [Futures Thinking] Response Surface Optimization of Cereal-based Patty and Kroepek for Enhanced Acceptability and Market Assessment Maribelle T. Piamonte, Ivy Mar B. Cabornida & Analyn A. Gonzales	207 - NICER Project 3: Development of Optimized Post-Harvest Processing Approaches for Improved Quality of Cacao Beans Renel M. Alucilja, Maricel Dayaday, Lydia C. Pascual, & Sheena B. Lucena	307 - [MINSUPALA-USM Kabacan] Assessment of Socioeconomic Status of Communities in the Liguasan Marsh in Cotabato Province Francisco Gil N. Garcia & Romiel John P. Basan
10:40 AM	10:50 AM	108 - Productivity Evaluation of Yellow Passion Fruit under Kabacan, Cotabato Microclimatic Conditions Sandra Joy P. Pahm	208 - NICER Project 2: Upgrading of the Cacao Gene Bank for the Conservation and Management In Cacao Varietal Improvement Gwen Iris D. Empleo & Ivy Pasquin	308 - [MINSUPALA-USM KCC] Assessment of Socioeconomic Status of Communities in the Liguasan Marsh in Cotabato Province Ronielyn F. Pinsoy, Jeconi Joyce T. Paler, Stephen Dave Dupo, Carmee Lyn P. Paylancgo, Dhealyn Decee V. Sabit, Carmee May L. Balneg, Mark Julius Seloterio, Jesabell O. Sambile
10:50 AM	**11:00 AM**	**Open Forum**		
11:00 AM	11:10 AM	109 - Molecular Identification and Control of Brown Leaf Malady of Selected Fruit Crops Jasmin A. Pecho, Marry Grace S. Balbuena, Tamie C. Solpot, & Clark I. Maarat	209 - Indigenous Phosphorus and Potassium Solubilizing Microorganisms as potential enhancer of phosphorus and potassium uptake of corn Leandreux D. Ocasion, Maria Elena N. Tanabe & Adeflor Garcia	309 - RAISE PROJECT 2. Establishment of Regional Agri-Business Hub (ABH) in Soccsksargen through the Raise Program Ronald Z. Pascual

11:10 AM	11:20 AM	110 - Phenomics Crosses and Propagation of Popular Cultivar of Durian (Musang King) Jurhamid C. Imlan & Sheena B. Lucena	210 - Productivity Assessment of Robusta Coffee Applied With Organic and Inorganic Fertilizers in Mindanao Leandreux D. Occasion	310 - Post-Assessment of the Competence of the Training Graduates of Selected Technical and Vocational School in North Cotabato Offering Rubber Production NCII, Agricultural Crop Production NCII, Rice Machinery Operations NCII, and Organic Agriculture Production NCII Rezin G. Cabantug, Roy Cabatac & Leizl Gray T. Oria
11:20 AM	**11:30 AM**	**Open Forum**		
		BASIC RESEARCH	**APPLIED RESEARCH / DEVELOPMENT**	**EXTENSION**
11:30 AM	**11:40 AM**	111 - Anti-Inflammatory and Therapeutic Benefits of Liniment Formulations Extracted from Herbs and Spices Rezin G. Cabantug & Abubakar A. Murray	211 - [Futures Thinking] Market Analysis and Innovation of Cacao-Based Products for Commercialization Esmaira G. Gunsayan, Analyn A. Gonzales, Harem R. Roca, Jane R. Desamito, & Sandra Joy Pahm	311 - [Extension] Safe Spaces: Fighting Sexual Harassment through Education and Empowerment Mariz P. Balquin, Rolly C. Sotto & Vicente Delos Reyes
11:40 AM	**11:50 AM**	112 -	212 - [Futures Thinking] Technological Innovation and Value Addition Through Product Diversification of High-Value Crops for Halal Cosmetics and Supplements Queennie L. Rufino, Leizl Gray Oria, Marivic D. Candari, Jurhamid C. Imlan, Sandra Joy P. Pahm, & Mary Ann B. Rama	312 - Developing Land Management Options for Diverse Cacao-based System in Mindanao. Component 2. Showcase the Advantages of the Different Soil Management Technologies to Cacao Farmers and Other Players in the Industry Mel Chrisel A. Sales
11:50 AM	**12:00 NN**	**Open Forum**		
12:00 PM	**1:00 PM**	**Lunch Break**		
1:00 PM	1:10 PM	113 - Screening for Resistance and Fungicide for Pestalotiopsis Leaf Spot Disease of Coffee Bernadith Borja & Tamie Solpot	213 - [Futures Thinking] FOOD FOR LIFE 3.0: Environmental and Hormonal Manipulations of Fishes in Ligawasan Marsh for Improved Breeding Florence Roy P. Salvaña, Cyrelle M. Besana & Pia Amabelle Flores	313 - Empowering Equity Target Students: Enhancing Access and Success in SUCs in Region XII Marcos F. Monderin

1:10 PM	1:20 PM	114 - Hybridization of Rubber (*Hevea brasiliensis*) Towards Development of High-Yielding and Disease-Resistant Clones Janice Bangoy, Sheena Lucena, Marry Grace Balbuena & Jasmin Pecho	214 - [Futures Thinking] Towards Commercialization: Halal-Plant Based Concoctions as Nutrient Sources for Crucifers and Solanaceous Vegetable Crops Through Field Validation and Market Analysis Jhon Dave E. Llanto, Mark Al-Jamie J. Muttulani & Lorelyn Joy N. Turnos-Milagrosa	314 - [Extension] BIO-NIHAN para sa Kalikasan in Columbio: Sustainable Initiatives for Biodiversity Conservation Cromwel M. Jumao-as, Cherie Cano-Mangaoang, Florence Roy P. Salvaña, Bryan Lloyd P. Bretana, & Elvie V. Diaz- SKSU
1:20 PM	**1:30 PM**	**Open Forum**		
1:30 PM	1:40 PM	115 - Harnessing Rhizobacteria and Actinomycete's Potential as Biofertilizer and Biocontrol Inputs Supportive of Strengthening the Organic Agriculture Industry (Harbis-Organic) Mel Chrisel A. Sales, Neil Pep Dave Sumaya & Ma. Teodora N. Cabasan	215 - [Futures Thinking] Development and Evaluation of Corn (Zea mays L.) Microgreen-Based Products Metche Anne C. Logronio, Lorelyn Joy N. Turnos-Milagrosa & Mark Al-Jamie J. Muttulani	315 - [Extension] USM T.O.U.R.S. (Travel Odyssey: Unveiling Rich Sights) Meldred F. Samblaceño, Dianne Cristel M. Basilio & Rosyell Angelo N. Piosca
1:40 PM	1:50 PM	116 - Standardization of Organic Herbicide Formulations Towards Enhanced Weed Management for Sustainable Farming Rezin G. Cabantug & Abubakar A. Murray	216 - Development of Potential Coffee (Coffea canephora) and Cacao (Theobroma cacao) Agri-Product Based Beverages Mark Al-Jamie J. Muttulani, Lorelyn Joy N. Turnos-Milagrosa & Sedra A. Murray	316 - [Extension] CBDEM - Delicacies: Capacity Building, Demonstration and Enterprise Development of Maguindanaon Delicacies Roy B. Gacus, Francisco Gil N. Garcia, Esmaira G. Gunsayan, April Geraldine M. Quiñonero, Analyn A. Gonzales & Irving T. Fajarito, Jr.
1:50 PM	**2:00 PM**	**Open Forum**		
2:00 PM	2:10 PM	117 - [Futures Thinking] Optimization of the Production of Biochar from Coconut and Animal Waste Jurhamid C. Imlan & Rezin G. Cabantug	217 - Steady-State Hydraulic Numerical Analysis for Optimized Water Distribution Network Modelling: An Application of Selected Hydraulic Solver Ma. Dely P. Esberto, Christopher Benito, & Zherwin Descallar	317 - [Extension] Scholars Presenting Advanced Research Knowledge (SPARK) Mary Joy S. Canolas & Allan C. Facurib
2:10 PM	2:20 PM	118 - Characterization of Palm Oil Products Using GC-MS and FTIR and its Potential Application for Bio-Plasticizers Marivic D. Candari, Queennie L. Rufino & Nikki Jane S. Benito	218 - GIS-Aided Assessment of the Biochemical and Microbial Status of the USM Agricultural Research and Development Center (USMARDC) of the existing Land Use Utilization and Future Management Jurhamid C. Imlan, Rezin G. Cabantug, Janice M. Bangoy, Marry Grace N. Balbuena, & Jasmin A. Pecho	318 - [Extension] Promoting Local Upliftment Through Sustainable Corn Initiatives (CORN PLUS) Nenita E. Olero & Janice M. Bangoy
2:20 PM	**2:30 PM**	**Open Forum**		

2:30 PM	2:40 PM	119 - [MINSUPALA-USM Kabacan] Assessment and Characterization of Water Quality, Inland Capture Fisheries, Watershed, and Socio-economic of Important Water Bodies for Social and Economic Transformation in Central Mindanao Francisco Gil N. Garcia, Lydia C. Pascual, Debbie Marie B. Verzosa, Jennet R. Mag-aso, Rezin G. Cabantug, & Leonila V. Papalid	219 - USMGEO: University Spatial Mapping and Geographic Information System Portal Renel M. Alucilja, Kathleen Mae B. Alucilja & Eugene Ranjo	319 - [Extension] Collaborative Networking and Engagement for Community Transformation (CONNECT) Janice M. Bangoy, Jaypee P. Monfort, Ritchel O. Torres & Diether M. Barro
2:40 PM	2:50 PM	120 - [MINSUPALA-USM KCC] Assessment and Characterization of Water Quality, Inland Capture Fisheries, Watershed, and Socio-economic of Important Water Bodies for Social and Economic Transformation in Central Mindanao Ronielyn F. Pinsoy, Jeconi Joyce T. Paler, Stephen Dave Dupo, Carmee Lyn P. Paylancgo, Dhealyn Decee V. Sabit, Carmee May L. Balneg, Mark Julius Seloterio, Jesabell O. Sambile	220 - Commercialization of Chevon Food Products and Standardization of Processing Center Jalaloden B. Marohom	320 - [Extension] SMART SNACKS: Creating Innovative & Affordable Snacks with Healthy Options Janice M Bangoy, Maybell S. Martin, Leila S Moscoso & Leizl Gray Oria
2:50 PM	**3:00 PM**	**Open Forum**		
3:00 PM	3:10 PM	121 - Unveiling Patterns: Data Analytics Approach to Understanding Student Success in USM College Entrance Exams Janice T. Palmaera, Elizabeth R. Genotiva & Arjay S. Agbunag	221 - Establishment of Instrumentation System Modeling, Assembly and Response Testing (ISMART) Laboratory Maricel G. Dayaday	321 - [Extension] Building Capacities of Barangay People for Community Development (BALABAG) Dhealyn Decee V. Sabit, Ronielyn F. Pinsoy, Matt Edison G. Alcantara, Jenny B. Mamacus, Niño Chelvin E. Sabit & April Rose B. Flores
3:10 PM	3:20 PM	122 -	222 - A Novel Way of Performing Item Analyses Ronald Z. Pascual & Augustus Venancio B. Ramos	322 - [Extension] Towards a Healthy Well-Being: Psychoeducation and Psychosocial Intervention for High Scoring High School Students in DASS21 in Kabacan, Cotabato Myka Ivana P. Sorilla, Judy Ann G. Villafranca, Khristine Joy B. Garcia, Maria Angelika T. Balungay, & Zenell Winnejoy B. Ligahon
3:20 PM	**3:30 PM**	**Open Forum**		

3:30 PM	3:40 PM	123 -	223 - Developing Land Management Options for Diverse Cacao-based system in Mindanao. Component 1. Effective, Regenerative and Climate Resilient Soil Management Options for Safe and Sustainable Cacao-Based Cropping System in Davao City and North Cotabato Mel Chrisel A. Sales	323 - [Extension] Infograp ng mga Impormasyon Hinggil sa Halaga, Tamang Pamamaraan at Benepisyo ng Pagpapasuso: Isang Teknikal Na Pagsasalin sa Wikang Teduray Radji A. Macatabon, Carlo Jason D. Dela Cruz & Roselyn M. Clemen
3:40 PM	3:50 PM	124 -	224 - [Futures Thinking] University of Southern Mindanao Futures Thinking for Food Security and Health, Systems, Innovations and Sustainability Francisco Gil N. Garcia, Edward A. Barlaan & Ma. Teodora N. Cabasan	324 -
3:50PM	4:00PM		225 - Assessment of Durian Clone Variability: A Study on Yield Performance in USM Established Orchard Janice M. Bangoy	
4:00PM	**4:10PM**	**Open Forum**		
4:30PM	**5:00PM**	**Closing Program**		

9:00AM - 9:10AM

101 – Optimization and Validation of USM Developed Bio-stimulant for Dragon Fruit Production

Jasmin A. Pecho

ABSTRACT. This project Optimization and Validation of USM Developed Bio-stimulant for Dragon Fruit Production, with three objectives: to demonstrate the application of bio-stimulants in dragon fruit orchard; to conclude the effect of bio-stimulants on the growth and production of dragon fruit; and to evaluate the yield of dragon fruit as affected by the bio-stimulants. This research is conducted at CA-SDC, which previously planted with dragon fruit but abandoned for three years. There 200 dragon fruit plants planted in the area. Bio-stimulants such FAA and shrimp-waste were applied earlier this year. The bio-stimulants applied by roots/soil drenching. The application was done using a drenching method and initial Brix was also recorded. Initially, the application of bio-stimulants, such as FAA and shrimp-waste have a positive impact on the overall health and yield of the dragon fruit plants. Yield and yield parameters such weight of harvested fruits and number of fruits marketable and non-marketable were recorded.

Keywords**:** dragon fruit, bio-stimulants, fish amino acid, shrimp-waste

9:10AM - 9:20AM

102 – Characterization and Performance of Ten (10) Promising Varieties of Cacao In Different Agro Climatic Zones in the Philippines

Ardniel A. Baladjay & Sheena B. Lucena

9:30AM - 9:40 AM

103 – Development of Corn Hybrids and Synthetic with Tolerance to Herbicide

Jessie G. Elarde, Nenita E. Olero, Efren E. Magulama, & Edward A. Barlaan

ABSTRACT. Corn farmers are gradually shifting to round-up ready (RR) corn hybrids or its 2nd filial generation they locally called as “sige-sige” variety. As per conversation to corn farmers, they choose to buy at the price of Php6,000-8000 these varieties to avoid high cost of manual weeding that can reach to as much Php18,000.00. What the farmers hardly know is that the yield of advanced generation of RR and sige-sige varieties is declining through generations. This corn breeding research aimed to develop high yielding and herbicide resistant corn hybrids and synthetics that are affordable, especially to small farmers. The initial results of this research were the development of three herbicide tolerant single cross hybrids, seven double cross parental lines for advancing to four-way cross hybridization and broad-based synthetic corn variety. The yield of these hybrids and synthetics ranges from 6.1 to 6.9 t/ha based on the prediction of good combining ability (GCA) by Jenkins, 1934.

Keywords: Phenotyping, multi-cross hybrids, synthetics, tolerance, herbicides

9:40AM - 9:50AM

104 – Breeding of Corn Varieties with Climate Change Resilience: Drought Resistance

Nenita E. Olero

ABSTRACT. Drought is one of the major abiotic factors affecting the productivity of corn in the Philippines. Climate change due to global warming could possibly increase the chance of drought stress in corn production. USM Corn R & D Team had developed high yielding 17 white and five (5) open pollinated varieties with good phenotypic characteristic. To attune these corn varieties to abiotic stress to combat climate change resilient there is a need to enhance their genetic make-up. This study was conducted to identify and select USM white and yellow corn OPVs with tolerance to drought; and to develop inbred lines from the identified USM white and yellow corn OPVs with tolerance to drought for future breeding activities in the development of corn varieties. The entries tested for drought tolerance were USM Var 6, USM Var 10, USM Var 24, USM Var 5, USM Var 9, USM NCH 33, USM NCH 35, USMARDC Glut 1, USM Y2301, USM Y2302 and USM Y2303.

Keywords: Breeding, climate, resilience, drought, tolerance

10:00AM -10:10AM

105 – Breeding of White OPVs, Glutinous, and Sweet Corn For Herbicide

Nenita E. Olero, Jessie G. Elarde & Monaira Sumail

ABSTRACT. Corn is one of the most important locally crops grown in the Philippines. It is used as staple food by about 14 million Filipinos specifically the white corn while yellow corn is mainly used for livestock feeds. Weeds in corn fields can reduce around 18-80% yield if not controlled by farmers aside from being an alternative host to insect pests. This study was conducted to develop white and special types of corn with tolerance to herbicide. Field trials for the development or breeding of white corn, glutinous corn and sweet corn through selfing were done from July 2024. The experiment was carried out in Randomized Complete Block Design (RCBD) replicated three times. S1 seeds of white corn lines, glutinous and sweet corn were planted in an ear-to-row method in a 3m row length spaced at 0.75m between furrows and 0.25m between hills.

Keywords: Breeding, glutinous corn, herbicide, sweet corn and white corn

10:10AM - 10:20AM

106 – Molecular Validation of USM-Developed Corn Varieties (USM 5,6,10)

Marry Grace S. Balbuena and Peny Lane E. Vallejos

ABSTRACT. USM had been known as a research center for corn. At present, the USMARD Center has developed and initially evaluated different OPVs (germplasm) that are promising and have market potential against commercial varieties. Thus, further validation of these

varieties at the genetic level is needed to provide accurate identity and it is crucial for crop production. SSR markers provide a reliable and cost-effective tool for screening and validating a species' genuine identity at the molecular level. Molecular identification and evaluation of USM corn lines being commercialized was the main objective of this project. To date, 22 SSR primers (Forward and Reverse) were initially tested for PCR amplification and were also tested for polymorphism. Out of 22 SSR primers, 18 primers showed polymorphic amplification. Moreover, additional SSR primers will be tested for polymorphism to establish efficient and reliable molecular identification and characterization of USM Var. 5, 6 and 10.

Keywords**:** molecular validation, corn varieties, SSR, accurate identity

10:30AM - 10:40AM

107 – Response Surface Optimization of Cereal-based Patty and Kroepek for Enhanced Acceptability and Market Assessment

Maribelle T. Piamonte, Ivy Mar B. Cabornida & Analyn A. Gonzales

ABSTRACT. The rise of diet-related diseases, fueled by unhealthy food and sedentary lifestyles affects not only adults but also the future health of younger generation. Health and wellness are becoming top priorities for consumers, leading them to be more discerning about their food choices. Thus, highly nutritious snack food products are considered healthier alternatives and are very much possible to formulate and develop through enhanced food technologies. Therefore, this study was conducted to develop shelf-stable and market-ready cereal-based snack food products such as kroepeck and patty utilizing locally identified available cereals and functional ingredients by optimizing its formulations. Mixture design was used to investigate the effect of different ingredients on consumer acceptance of sensory properties such as appearance, aroma, taste, mouthfeel, and general acceptability. Activities include re-run of two treatments (TA-inside the optimum region and TB-outside the optimum region) from optimized formulation of developed cereal-based products for the verification of the model equation's predictive ability. Sensory evaluation will be conducted for the two treatment and T-test analysis will be performed. The project seeks to assess the microbial quality and nutritional composition, consumer preference and attitude, and to determine the costs incurred and consumers' willingness to pay for cereal-based food products In a survey of 30 respondents, Treatment 10 cereal-based kroepeck and Treatment 2 cereal-based patty emerged as the most acceptable options in terms of general acceptability.

Keywords**:** Corn, Rice, Adlai, Soybean, Healthy snack foods

10:40AM - 10:50AM

108 – Productivity Evaluation of Yellow Passion Fruit under Kabacan, Cotabato Microclimatic Conditions

Sandra Joy P. Pahm

ABSTRACT. Passion fruit is an exotic fruit that belongs to the family Pasifloraceae and the two recognized edible types are yellow (Passiflora edulis forma flavicarpa O. Deg.) and purple (Passiflora edulis). Major producers of passion fruit are in North and South Cotabato provinces in Mindanao, Philippines. Yellow passion fruit is the most commonly cultivated type, as it is

fast-growing and bears fruits within 1 to 2 years after planting. The fruit is sold fresh but is processed into juice. The industry of passion fruit in the Philippines is not well-established, and it is mainly grown as a backyard crop by the small farmers. Despite advances in research and investments, the fruit still faces issues related to fertilization inadequacy and plant nutrition, resulting in low productivity. There is limited data on passion fruit production practices in the Philippines, as it is not widely produced. While the Department of Agriculture promotes the use of bio-fertilizers to farmers to reduce their dependence on expensive and imported fertilizers. The potential use of bio-fertilizer and its positive effect on the quality of the fruits of passion fruit may pave the way for the reestablishment of the production area of passion fruit in the region. The study aims to establish a passion fruit nursery and evaluate the growth performance of yellow passion fruit as affected by bio-fertilizers under the microclimatic condition of Kabacan, Cotabato.

Keywords**:** Yellow Passion Fruit, Granadilla, Bio-fertilizers, Nursery, Productivity

11:00AM - 11:10AM

109 – Molecular Identification and Control of Brown Leaf Malady of Selected Fruit Crops

Jasmin A. Pecho, Marry Grace S. Balbuena, Tamie C. Solpot, & Clark I. Maarat

11:10AM - 11:20AM

110 - Phenomics Crosses and Propagation of Popular Cultivar of Durian (Musang King)

Jurhamid C. Imlan & Sheena B. Lucena

ABSTRACT. Durian, a tropical fruit widely grown and consumed in Southeast Asia, faces challenges such as pests, diseases, post-harvest losses, and limited genetic diversity. This study aimed to address these issues through a hybridization program involving thirteen durian varieties, utilizing hand cross-pollination techniques at the USMARDC Durian Clonal Garden. A total of 225 flowers were pollinated across twenty-four (24) crosses during the flowering season (May-June, 2024). The fruit set ranged from 4% to 20%, with Monthong x MDUR 88 achieving the highest fruit set (72.72%) and MDUR 88 x D 197 ('Musang King') the lowest (25.00%). Despite initial success, the fruit retention rate declined due to rainy weather and insect damage, consistent with findings from Ketsa et al. (2020) and Love et al. (2019). Ten crosses successfully produced 35 hybrid fruits, with an average fruit retention rate of 31.15%. Moreover, DOST PAGASA's climate monitoring and analyses indicated that the unusual warming of sea surface temperatures along the equatorial Pacific that was established in March 2023 has further developed into an El Niño. Sea surface temperature anomalies increased over the past few months indicating further development of El Niño affecting the 434 cities and municipalities in the Philippines. In Southern part of Mindanao, El Nino damaged 170 thousand hectares of agricultural crops amounting to ₱ 9 billion and over 183 thousand displaced farmers. At USMARDC, establishment of nursery for Durian is impossible due to dry spell with heat index ranging from 40-45^{o}C (PAGASA, 2023). This research highlights the potential

of breeding techniques to enhance durian productivity and quality, addressing key industry challenges and contributing to the long-term sustainability of durian cultivation.

***Keywords*:** Durian, hybridization, cross-pollination, flower, fruit set

11:30AM - 11:40AM

111 - Anti-Inflammatory and Therapeutic Benefits of Liniment Formulations Extracted from Herbs and Spices

Rezin G. Cabantug & Abubakar A. Murray

11:40AM - 11:50AM

112 -

1:00PM - 1:10PM

113 – Screening for Resistance and Fungicide for Pestalotiopsis Leaf Spot Disease of Coffee

ABSTRACT. Coffee is one of the most important cash crops in many countries and is widely consumed beverage around the world. However, its productivity is subjected to numerous factors including several diseases which can serve as limiting factors that results to yield losses. Recently, new disease caused by Pseudopestalotiopsis theae was found to cause leaf spot of robusta coffee in Sultan Kudarat and Cotabato. Hence, this study was conducted to evaluate integrative approaches to manage an emerging Pestalotiopsis disease of coffee. All the four varieties of coffee (arabica, excelsa, liberica and robusta) were infected with the pathogen both in detached leaf assay and under nursery condition. The test pathogen was highly virulent to four coffee varieties showing the shortest days to symptom appearance ranging from 5.90 to 8.70 days and higher percentage infection (PI) of 50 to 80%. However, growth of the pathogen can be completely inhibited by 10 fungicides (Ametoctradin + Dimethomorph, Pyraclostrobin, Metiram + Pyraclostrobin, Benomyl, Thiophanate Methyl + Inert, Mancozeb, Difenolonazole, Tebuconazole, Azoxystrobin, Mancozeb + Carbendazim). These findings highlight the urgency of implementing effective management strategies to prevent the infection of the pathogen in the field, thereby minimizing losses and ensuring the sustainability of this important agricultural crop.

***Keywords*:** Leaf Spot, Host, Fungicide, Pseudopestalotiopsis theae, Coffee

Bernadith Borja & Tamie Solpot

1:10PM - 1:20PM

114 – Hybridization of Rubber (*Hevea brasiliensis*) Towards Development of High-Yielding and Disease-Resistant Clones

Janice Bangoy, Sheena Lucena, Marry Grace Balbuena & Jasmin Pecho

ABSTRACT. The research program "Hybridization of Rubber for the Development of High-Yielding and Disease-Resistant Clones" aims to develop superior rubber clones with enhanced yield and disease resistance through a comprehensive approach that includes hybridization, ortet selection, molecular profiling, pest and disease resistance evaluation, and morphological analysis. In the initial four months of this project, significant progress has been made across its four components. Project 1 focuses on Genetic Diversity Mapping in Rubber Hybridization via hand pollination and ortet selection. Project 2 utilizes SSR techniques for Molecular Profiling to assess genetic diversity and structure among selected rubber seedlings, providing essential data for further analysis. Project 3 investigates the Early Development of Insect Pest and Disease Resistance among potential hybrids in the nursery. Project 4 analyzes Morphological Perspectives in Nursery Growth to evaluate key traits related to seedling development. Notable achievements include the hybridization of 17 fruits from 238 emasculated flowers, expected to be harvested in September 2024; the cultivation of 600 out of an initial 1,000 seedlings from ortet selection; preliminary observations of pest and disease impacts; and the collection of leaf samples for molecular analysis. These preliminary findings mark a significant advancement toward the development of high-yielding and disease-resistant rubber clones, highlighting the program's contribution to the improvement and sustainability of rubber production.

Keywords**:** Hybridization, Rubber Clones, High-Yielding, Disease-Resistant, Genetic Diversity Mapping, Hand Pollination, Ortet Selection, Molecular Profiling, SSR Techniques, Genetic Diversity, Pest and Disease Resistance, Morphological Analysis

1:30PM - 1:40PM

115 – Harnessing Rhizobacteria and Actinomycete's Potential as Biofertilizer and Biocontrol Inputs Supportive of Strengthening the Organic Agriculture Industry (Harbis-Organic)

Mel Chrisel A. Sales, Neil Pep Dave Sumaya & Ma. Teodora N. Cabasan

ABSTRACT. Access of farmers on effective, ecological, and cost-efficient inputs such as microbial inoculants will support crop productivity and sustainability. The HARBIS project aims to harness potential rhizobacteria and important actinomycetes as biofertilizer and biocontrol input for organic farming. This is an on-going project supported by DA-BAR. Rhizosphere and roots of selected agroforest plants free from chemical pesticide and synthetic fertilizer application were collected for isolation of microorganisms. Rhizobacteria and actinomycetes were tested on their potential as plant growth-promoter. Our initial results highlight the isolation of 74 bacterial isolates from 7 plant species. Of these, 68 were non-fastidious and 27 showed plant growth-promoting potential. There were 19 isolates able to produce ammonia and 7 isolates were strong hydrogen cyanide producers. There were 6 isolates positive for both plant growth-promoting assays. Further work will be done on the indole-3-acetic acid production assay and phosphate solubilization test, molecular characterization of potential isolates, and in vivo screening of isolates as plant-growth promoter and biocontrol agents. The project is expected to contribute in providing better access for farmers to soil nutrient inputs and biocontrol agents for pests for optimum crop production. Once developed, the microbial inoculants will undergo testing and validation for production and extension.

***Keywords*:** bacteria, microbial inoculants, organic fertilizer, sustainable farming

1:40PM - 1:50PM

116 – Standardization of Organic Herbicide Formulations Towards Enhanced Weed Management for Sustainable Farming

Rezin G. Cabantug & Abubakar A. Murray

2:00PM - 2:10PM

117 – Optimization of the Production of Biochar from Coconut and Animal Waste

Jurhamid C. Imlan & Rezin G. Cabantug

ABSTRACT.

***Keywords*:**

2:10PM - 2:20PM

118 – Characterization of Palm Oil Products Using GC-MS and FTIR and its Potential Application for Bio-Plasticizers

Marivic D. Candari, Queennie L. Rufino & Nikki Jane S. Benito

2:30PM - 2:40PM

119 – Assessment and Characterization of Water Quality, Inland Capture Fisheries, Watershed, and Socio-economic of Important Water Bodies for Social and Economic Transformation in Central Mindanao

Francisco Gil N. Garcia, Lydia C. Pascual, Debbie Marie B. Verzosa, Jennet R. Mag-aso, Rezin G. Cabantug, & Leonila V. Papalid

ABSTRACT. This program is an initiative of the MINSUPALA – Innovative Research and Development Consortium. As a collaboration of nine agencies, the project aims to provide a comprehensive assessment and characterization of important water bodies in Central Mindanao. For USM Kabacan, the area of investigation is the Liguasan Marsh. The project comprises of four aspects—assessment of water quality (Project 1), characterization of inland capture fisheries (Project 2), watershed characterization (Project 3), and socio-economic analysis of local communities along the watershed (Project 4). This report focuses on the first three projects; the fourth project is presented separately in the Social Category of the Midyear In-house Review. The first three months of the project involved obtaining the necessary permits and clearances from local government units, as well as organizing and participating in training sessions. Experts from the nine collaborating agencies served as resource persons, facilitating mutual learning and knowledge sharing. The next three months involved the initial data

gathering phase. For Project 1, the Standard Operating Procedures (SOPs) for analyzing heavy metals in water samples was finalized. Initial findings revealed that human activity has an impact on the marsh, based on turbid near residential areas and the presence of plastic waste and other debris. Further, the marsh is heavily vegetated, leaving only a small area cleared for boat access. For Project 2, the Freshwater Fish Market Survey Form was finalized. Potential sampling stations were marked, with replicates identified and established in response to each type of habitat. For Project 3, the team assessed and documented the flora and fauna in the Libungan-Alamada Watershed across the riparian zone with three sampling sites (upstream, midstream, downstream). As with Project 1, the impact of human activity is noted as more species of flora and fauna were found upstream compared to the midstream and lowland areas. These results collectively emphasize the need for effective waste management, conservation strategies, and environmental protection to maintain the biodiversity and ecosystem services of Liguasan Marsh.

Keywords**:** Liguasan Marsh, water quality assessment, heavy metal contamination, inland capture fisheries, flora and fauna

2:40PM - 2:50PM

120 – Assessment and Characterization of Water Quality, Inland Capture Fisheries, Watershed, and Socio-economic of Important Water Bodies for Social and Economic Transformation in Central Mindanao

Ronielyn F. Pinsoy, Jeconi Joyce T. Paler, Stephen Dave Dupo, Carmee Lyn P. Paylancgo, Dhealyn Decee V. Sabit, Carmee May L. Balneg, Mark Julius Seloterio, Jesabell O. Sambile

3:00PM - 3:10PM

121 – Unveiling Patterns: Data Analytics Approach to Understanding Student Success in USM College Entrance Exams

Janice T. Palmaera, Elizabeth R. Genotiva & Arjay S. Agbunag

ABSTRACT. There are gaps in education between students from different socioeconomic backgrounds prior academic preparation, socioeconomic background, parental education and support, school last attended , access to learning resources, individual motivation and study habits, cultural and language factors, health and well-being, test anxiety, access to test preparation and coaching, peer influence, educational policies and practices, equitable access to education, and support systems within schools collectively influence students' performance on entrance exams. This project involves comprehensive data collection of entrance exam results, including student scores, demographics such as age, gender, ethnicity, place of origin, and relevant variables like school attended and socioeconomic status, followed by data cleaning to ensure accuracy, data exploration to understand dataset structure, summary statistics calculation to analyze central tendencies and distributions, data visualization to depict score distributions and patterns, data interpretation to derive insights on exam trends and variations across demographics, and documentation of analysis processes for transparency and reproducibility. Investigating the factors influencing student success in the USM College Entrance Exams (USMCEE) using data analytics techniques is crucial for gaining insights into the determinants of academic achievement and identifying areas for potential improvement in

the exam system. By leveraging data analytics, this study aims to extract meaningful patterns and correlations from the dataset to inform educational policies and interventions. Understanding the demographic profile of students taking the USM College Entrance Exams (USMCEE) is essential for assessing the diversity and representation within the student body. Analyzing demographic variables such as age, gender, ethnicity, and educational background can provide insights into potential disparities or trends in exam performance across different student groups. Preprocessing and transforming the USMCEE dataset are critical steps to ensure data accuracy and consistency. This involves cleaning the data by handling missing values, removing duplicates, standardizing formats, and resolving inconsistencies. Transformations may include feature engineering to create new variables or aggregating data to facilitate analysis. EDA plays a vital role in understanding the structure and contents of the USMCEE dataset. Through EDA, the study aims to uncover patterns, relationships, and outliers within the data. Visualizations such as histograms, scatter plots, and correlation matrices will be used to explore distributions, identify trends, and assess the quality of data. Key variables related to exam performance, such as scores in different subjects, will be examined to gain initial insights into potential factors influencing student success. By achieving these objectives, we can lay the groundwork for a comprehensive analysis of the USMCEE dataset. The outcomes of this investigation will not only contribute to our understanding of student performance in entrance exams but also provide evidence-based recommendations for supporting student success and promoting equitable access to education.

Keywords**:** Data Analytics

9:00AM - 9:10AM

201 – RAISE Project 1. Regional Intellectual Property and Technology Business

Pia Amabelle Flores, Julius Jerome G. Ele, & Cyrelle M. Besana

ABSTRACT. The project described here is funded by DOST-PCAARRD, in line with Republic Act No. 10055. The project aims to enhance intellectual property (IP) protection and technology commercialization in regional consortia, in support of the regional innovation ecosystem and regional development. The project has achieved the following milestones: it assisted USM OPV and hybrid corn technologies in royalty and licensing transactions, and enhanced University IP assets with registered Utility Models, trademarks, and copyrights, totaling 100 IPs. An important event this year was the hosting of the graduation ceremony for the National Technology Commercialization Mentorship Series (TCMS) from April 16-18, 2024. USM IPTBM facilitated the event with 107 participants from seven regions, who are recipients of IPT BM funding. This year, we also conducted capacity-building at the regional level to consolidate regional IP inventory and to assist in the development of IP Policy for CMIs and other SUCs. USM IPTBM is continuously innovating strategies to upgrade IP and technology commercialization at the University and leverage these innovations to lead the region.

Keywords: RAISE, Intellectual property, technology transfer, Innovation, CMI

9:10-9:20

202 – Raise Project 3a. Enhancement of the Agri-Aqua Technology Business Incubator (ATBI) in University of Southern Mindanao (USM) Through The Raise Program

Pia Amabelle M. Flores, Jalaloden B. Marohom, Benjie B. Mari, Connie Jean J. Guinmapang, Allen Mark V. Canos, Arjay G. Guinitia

ABSTRACT. The USM DOST-PCAARRD and USM ATBIcontinues to operate in the University under the RAISE-12 program. The project aims to satisfy the following objectives, to: 1) Stregnthen existing, and development of new inter-agency partnerships (CMIs, NGOs, GA, Private agencies etc.) for agri-aqua technology innovation commercialization; 2) Develop, enhance and implement an ATBI communication plan; 3) Facilitate and organize recruitment, renewal, training, business assistance, and graduation of incubatees (pre-, basic, advance, and/or acceleratees); 4) Improve operations of USM ATBI by enhancing capability to expanding technical services and technology offering; and 5) Contribute to the improvement of the entrepreneurial ecosystem in SOCCSKSARGEN. market and funding sources to sustain the operations.From the project implementation last October, 2023, the project has acquired 14 incubatees as of March, 2024. The project continues provide services from business plan development, marketing through trade exhibits and technology pitching, product development assistance, packaging and labeling and other technical services such as IP applications in coordination with USM IPTBM. Through the ATBI project, it contributed to additional IP asset in the University. The project highlights the innovative strategies such as “incubiosys (incubatee symbiosis)” to encourage beneficial mutual relationship between incubatees. We also implemented “Incubatee Tech Demo”, a series of capacity-building activities about technologies or products of incubatees to cooperatives and other group of organizations as a way to promote the incubatee’ products. The OTOP highway which relates to OTOP stores signifying approval in displaying incubatee’s products in their respective stores in the

region.This and more innovations in the future tosustain technology business incubation in the region.

Keywords: RA 1137, Technology business incubation, commercialization, incubatee, startup

9:30-9:40

203 – RAISE PROJECT 4. Establishment of Regional Knowledge Management (KM) Hub in Soccsksargen through the Raise Program

Josephine R. Migalbin

9:40AM - 9:50AM

204 – Development and Characterization of Halal Feeds for Broiler Chicken Production

Jurhamid C. Imlan

10:00AM - 10:10AM

205 – Smart Cacao Budwood Nursery and Greenhouse for Production of High-Quality Planting Materials

Edward A. Barlaan, Renel M. Alucilja & Maricel G. Dayaday

ABSTRACT. Cacao production is constrained by several factors including low yield, lack of quality planting materials, limited area of cacao production, lack of awareness and technical know- how on improved technologies, limited technical support, and lack of access to market information and high-value markets. The study generally aimed to establish smart cacao budwood nursery and greenhouse for authentic NSIC and Criollo varieties and other promising accessions as resources for quality planting materials (QPMs), genetic improvement, development, and application of improved cacao-based agricultural systems. Specifically, it aims to assess at genomic level the purity of the putative true Criollo cacao types for production of QPMs; determine the percentage of Criollo incorporated in NSIC varieties at genomic level for cacao varietal improvement on bean quality; develop and evaluate smart and precision agriculture technologies in budwood nursery and greenhouse for data acquisition, analysis, and monitoring; and develop mass production, distribution, and monitoring systems of cacao quality planting materials for sustainable utilization. Putative Criollo types were identified through phylogenetic analysis using SSR markers specific for Criollo. Samples with 80%-100% coefficient were selected for genome sequencing. Leaf samples of putative Criollo and NSIC recommended cacao varieties were collected for DNA extraction and whole genome sequencing. Scions of putative Criollo and NSIC recommended cacao varieties were grafted for the establishment of smart cacao budwood nursery. The land area was prepared for the establishment of the smart cacao greenhouse and budwood nursery. Banana plantlets were planted months ahead to serve as partial shading for the cacao seedlings. Mowing and herbicide applications were done for field maintenance. Cacao seedlings were planted in the area. Post-qualification and evaluation for the design, delivery and installation of greenhouse and drip irrigation system are underway. Preliminary investigation of existing and emerging insect pests and diseases was conducted for the development of mobile application for data repository and

retrieval of pests and diseases in budwood nursery for management and monitoring. Soil bagger system and the soil mixer system were already fabricated. Pre-testing of the machines is still on going. The development and application of smart or precision agriculture in the budwood nursery and greenhouse were employed for the improvement and modernization of cacao-based farming and agricultural systems for increased productivity and profitability.

Keywords: cacao, budwood nursery, Criollo, greenhouse, smart agriculture

10:10AM - 10:20AM

206 – NICER Project 1: Molecular Fingerprinting of Cacao Parental Recommended HYVS and True Criollo Ensuring Multiplication of Quality Planting Materials (GPM) for Increased Productivity and Profitability

Edward A. Barlaan, Bernadith T. Borja, Jessie A. Lucañas, Kristine D. Paguntalan, Mary Cris G. Dadizon

ABSTRACT. The validated SSR markers for cacao are essential tools for identification of genuine varieties to guarantee planting of true-to-types to ensure increased productivity and profitability. The study aimed to assess the identities of parental source or mother plants of NSIC recommended varieties and Criollo types in different cacao nurseries; utilize molecular markers for certification parental or mother plant sources of NSIC cacao varieties and true Criollo types; and propagate the certified true-to-type cacao varieties as mother plant sources or genetic stocks for distribution. Functional SSR markers were used to validate NSIC recommended varieties and differentiate true Criollo types from non-Criollo accessions. Sixty-three accredited nurseries across different regions in the Philippines agreed in collaborating with the project. DNAs of collected leaf samples were extracted, quantified and used for PCR amplification and gel electrophoresis. More than 200 claimed Criollo-types along with Forastero, and Trinitario accessions from various regions of the Philippines were molecularly analyzed using SSR markers. True criollo types were identified and evaluated at the morphological level based on the available descriptors. Guidelines for registration of true Criollo using SSR markers were crafted and submitted to Bureau of Plant Industry (BPI). For NSIC cacao varieties, most varieties sold in the nurseries are BR25 and UF18. Of 189 UF18 mother plants analyzed, 11.6% were not authentic using C7729t1 marker while of 147 BR25 mother plants investigated, 12.9% were not genuine using C8223t1 marker. Different regions of the Philippines and other government agencies like the Department of Agriculture, BPI and other private companies requested for molecular identification of their samples. Of 587 samples analyzed, only 11.6% BR25 and 17.9% UF18 were authentic. Molecularly verified and BPI-certified cacao seedlings of UF18 and BR25 were propagated and distributed to different cacao nursery operators and farmers in Regions XI and XII. So far, a total 3,900 cacao quality planting materials to serve as mother plants were distributed to over 60 cacao nursery operators and cooperatives. Distributed seedlings were tagged and recipient nurseries were monitored to ensure planting of genuine varieties.

Keywords: Cacao, NSIC varieties, Criollo, SSR markers, quality planting materials

10:30AM - 10:40AM

207 – NICER Project 3: Development of Optimized Post-Harvest Processing Approaches for Improved Quality of Cacao Beans

Renel M. Alucilja, Maricel Dayaday, Lydia C. Pascual, & Sheena B. Lucena

ABSTRACT. Cacao bean quality significantly influences the market price of cacao-based products. Limitations such as inadequate knowledge and expertise in post-harvest processing technologies, unavailability of post-harvest processing facilities, and lack of access to market information and high-value markets must be addressed. This study aimed to develop optimized post-harvest processing approaches for improved quality of cacao beans. Benchmarking surveys were conducted to establish common practices for innovation and optimization for cacao pod storage, fermentation, drying, dried bean storage, roasting, hulling and winnowing, and grinding in Regions XI, XII, and XIII. The design, development, fabrication, and modifications of the pod breaker with pod husk and bean separator, semi-automated fermenting bin, village level-size solar dryer, roaster, huller and winnower, and grinder. Experimental runs are still ongoing on selected machines. For the conventional practices, a three-factor experiment on pod ripeness and storage, and wet bean draining, a comparison of two (2) drying methods, three (3) post-harvest technologies, four (4) percentages of holes, and four (4) wood types for fermentation boxes were conducted. Temperature on fermentation and drying were recorded, and bean grading was performed on dried samples. The physicochemical analysis determined the different nutrient content and chemical compositions of processed cacao beans. A total of 226 samples were collected and analyzed such as 11 samples from Region XI, 15 samples from Region XII, 1 sample from Region XIII, 116 samples from component 1, 75 samples from component 2, and 9 samples from the ATI training. However, some samples are still ongoing.

Keywords: cacao, benchmarking, optimization, physicochemical, post-harvest

10:40-10:50

208 – NICER Project 2: Upgrading of the Cacao Gene Bank for the Conservation and Management In Cacao Varietal Improvement

Gwen Iris D. Empleo

ABSTRACT. The identification of Theobroma cacao L. clones that possess desirable traits for varietal improvement is essential to meet changing production and market conditions. This project addresses the problems on the relatively low yield and low bean quality in cacao, and the prevailing diseases and pests affecting cacao productivity. The main goal of this project is to carry out effective cacao breeding strategies for the development of cacao varieties with improved yield, bean quality; and resistance to diseases and pests. The project aims to rehabilitate the existing USM cacao gene bank; enhance the USM cacao gene bank through the introduction of additional cacao clones; evaluate the morphological and agronomic characteristics of the cacao clones for the development of the Philippine cacao catalogue; develop cacao hybrids with high yield, bean quality, or resistance to pests and diseases; and validate the F1 identity of the products of crosses using molecular approaches. To date, 66 cacao clones collected from Regions X and XI, and 96 introduced cacao clones from the International Cocoa Quarantine Center (ICQC), University of Reading in the UK were transplanted and maintained in the cacao gene bank extension. A total of 57 fruit-bearing cacao clones were partially evaluated at the morphological level using the available descriptors for the development of the cacao catalogue. Further, seedlings from 20 two-way crosses and 4 three-way crosses developed from selected parents through hand-pollination are transplanted in the gene bank for evaluation.

Keywords: Cacao, gene bank, introduction, hybridization, breeding

11:00AM - 11:10AM

209 –Indigenous Phosphorus and Potassium Solubilizing Microorganisms as potential enhancer of phosphorus and potassium uptake of corn

Leandreux D. Ocasion, Maria Elena N. Tanabe & Adeflor Garcia

ABSTRACT. Phosphorus (P) and Potassium (K) are most essential plant macronutrients next to nitrogen. Despite of their abundance in nature, most phosphorus and potassium exist in insoluble form for plant absorption. Microorganisms, in the form of PSMs (Phosphorus Solubilizing Microorganisms) and KSMs (Potassium Solubilizing Microorganisms) are microbes capable of converting these essential plant elements into their assimilable forms. This study aims to assess the potential indigenous phosphorus and potassium solubilizing microorganisms from acidic and calcareous soil series representing Type II and Type III climatic conditions in selected municipalities of North Cotabato and Agusan del Sur. Further, the study employed isolation, characterization and pot trials to assess the P&K solubilization potential for corn nutrient uptake. A total of 111 microbial isolates were retrieved and purely cultivated from soil samples within different soil series. Of these, 29 were positive for phosphorus solubilization alone, 5 were positive for potassium solubilization alone, while 16 have dual solubilization capability. Top six isolates for phosphorus and potassium solubilization were used as treatments for this experiment. The best performing isolates for different pot trials in terms of height and leaf increment, and biomass are as follows: Isolate BER-Fer3 for phosphorus-calcareous pot trials, Isolate BER-R1 for potassium-calcareous pot trials, ROS-Tal3 for phosphorus-acidic trials, and PIS-Fer3 for potassium-acidic pot trials.

Keywords: phosphate solubilization, potassium solubilization, biofertilizer, microorganisms, soil series

11:10AM - 11:20AM

210 – Productivity Assessment of Robusta Coffee Applied With Organic and Inorganic Fertilizers in Mindanao

Leandreux D. Ocasion

ABSTRACT. With the continuous decline in the local production of robusta coffee, one reason is attributed to fertilization requirement and poor farm practices. The industry has aimed to increase the yield of robusta coffee to 1 kg GCB/tree/year to alleviate the Philippine coffee production. This project was conducted to evaluate cost-effective fertilization options for enhanced productivity of Robusta coffee established in USMARDC-Kabacan, Cotabato, La Roxas, Maramag, Bukidnon and Brgy. Tinalon, Senator Ninoy Aquino, Sultan Kudarat using Randomized Complete Block design (RCBD) with 3 replications and 7 treatments. Agronomic performance, soil characteristics and partial budget analysis were collected. The preliminary application of fertilizer treatments in robusta coffee across agro-climatic conditions resulted in varying responses in length of branch, number of secondary branch and number of clusters. The yield did not vary in USMARDC and Bukidnon. However, higher yield was recorded with control at SNA. Soil chemical characteristics planted to robusta coffee applied with different

fertilizer rates vary across locations. The application of PNS + O resulted in higher soil pH in Bukidnon. Application of fertilizers resulted in the increase of residual soil P in USMARDC and Bukidnon while P was not detected in Sultan Kudarat. In terms of the cost-effectiveness of the fertilizer options, only USMARDC showed profitability using the VH and VL +O rates with 414.70% and 822.61% marginal rate of return using partial budget analysis. The agronomic and yield parameters were highly variable which could be attributed to the timing of fertilizer application and crop growth stage during the inception of the project.

Keywords: robusta coffee, nutrient index, fertilizer recommended rate, increase yield, cost effective fertilizers

11:30AM - 11:40AM

211 – Market Analysis and Innovation of Cacao-Based Products for Commercialization

Esmaira G. Gunsayan, Analyn A. Gonzales, Harem R. Roca, Jane R. Desamito, & Sandra Joy Pahm

ABSTRACT. Recently, the demand for premium and innovative chocolate products has grown, fueled by evolving consumer preferences, heightened health awareness, and a craving for unique flavor experiences (Fortune Business Insights, 2020). At the university, research on developing and innovating cacao-based products has demonstrated significant commercialization potential. However, previous research projects faced limitations, including insufficient market research, unoptimized ingredient formulations, lack of expert testing, and unexplored consumer acceptability and willingness to pay. To address these gaps, this project aims to conduct market analysis and optimize the process for producing innovative cacao-based chocolate variants for commercialization. Initial efforts by the project team include benchmarking and market surveys, establishing linkages with the Department of Agriculture and the Department of Trade and Industry, participating in capacity-building activities, initiating dehydration of various tropical fruits to determine optimal temperature and duration, starting the optimization of ingredient formulations, and formulating quality control protocols for chocolate product processing.

Keywords: Market Analysis, Innovation, Cacao-based Products, Commercialization

11:40AM - 11:50AM

212 – Technological Innovation and Value Addition Through Product Diversification of High-Value Crops for Halal Cosmetics and Supplements

Queennie L. Rufino, Leizl Gray Oria, Marivic D. Candari, Jurhamid C. Imlan, Sandra Joy P. Pahm, & Mary Ann B. Rama

1:00PM - 1:10PM

213 – FOOD FOR LIFE 3.0: Environmental and Hormonal Manipulations of Fishes in Ligawasan Marsh for Improved Breeding

Cyrelle M. Besana, Florence Roy P. Salvaña, & Pia Amabelle Flores

ABSTRACT. Ligawasan Marsh is one of the largest wetlands comprising about 10% of the Mindanao River Basin. Aside from being a habitat various wildlife species, some fish species are harvested from this wetland by locals of nearby community. Conservation of fish genetic resources is needed as recognized by most fishery scientist especially in relation to overfishing of natural stock, the effects of large-scale alterations to river systems and domestication of species. With this, the main goal of the study is to determine the optimum water quality and hormonal manipulation of fish species for breeding in Ligawasan Marsh to address problems related to brood stock availability. Experimental tanks were pre-established for pilot testing. Preliminary collection of two fish species, including Channa striata and Cyprinus carpio. Gonads of fish samples were examined which yielded the result of gonadosomatic index (GSI) values. All of the examined samples have GSI values were below 1 which indicates low reproductive capacity. Thus, exploring other sites for sample collection is needed.

Keywords: environment, hormones, breeding, Ligawasan

1:20PM - 1:30PM

214 – Towards Commercialization: Halal-Plant Based Concoctions as Nutrient Sources for Crucifers and Solanaceous Vegetable Crops Through Field Validation and Market Analysis

Jhon Dave E. Llanto, Mark Al-Jamie J. Muttulani & Lorelyn Joy N. Turnos-Milagrosa

1:30PM - 1:40PM

215 – Development and Evaluation of Corn (Zea mays L.) Microgreen-Based Products

Metche Anne C. Logronio, Lorelyn Joy N. Turnos-Milagrosa & Mark Al-Jamie J. Muttulani

ABSTRACT. Corn (Zea mays), also called maize or field corn, is the most important cereal in the world, with annual global production exceeding that of wheat and rice. In 2017, corn production accounted for 41% of total grain production in the world. While corn is a staple food in parts of the world, it has many uses, including animal feed, biofuel and sweetener. This chapter provides an overview of the evolving role of corn in agriculture. USM (Future's Thinking)-funded research project on corn microgreens was conducted in 2023 wherein the potential of four USM-developed corn varieties as food ingredients were evaluated. Among the varieties tested, USM var6 and USM var 24 resulted in high rate of general acceptability from the consumers. The harvesting stage of microgreens were also evaluated in the study wherein microgreens harvested at 6-8 days after sowing showed better performance as food ingredients than those harvested at earlier or later stage. In this research proposal for 2024, Market Analysis of Developed Corn Microgreens Based Products will adopt a quantitative research design. Surveys and questionnaires will be administered to consumers, farmers, and traders to gather comprehensive information on demand, supply, and specific aspects of consumer preferences using systematic sampling. The Project Team Leader together with the Study Leaders and Research Staff gathered together to conduct a preliminary survey to the students which corn microgreens introduced as potential to the market and consumers.

Keywords: Production, microgreens, market analysis

1:40PM - 1:50PM

216 – Development of Potential Coffee (Coffea canephora) and Cacao (Theobroma cacao) Agri-Product Based Beverages

Mark Al-Jamie J. Muttulani, Lorelyn Joy N. Turnos-Milagrosa & Sedra A. Murray

2:00PM - 2:10PM

217 – Steady-State Hydraulic Numerical Analysis for Optimized Water Distribution Network Modelling: An Application of Selected Hydraulic Solver

Ma. Dely P. Esberto, Christopher Benito, & Zherwin Descallar

ABSTRACT. Control valves are used to mitigate problems on the hydraulic integrity of a water distribution system. System failure occurs when there is high pressures within the network that can damage the pipes, cause leakages and unsatisfactory water supply. However, there is no fixed procedure as to how these valves should be placed within the network, thus, several hybrid hydraulic solvers were developed to save time and effort in balancing the water system. The output of which would be the best optimized network where the valve placement seem to give the best option addressing the issues mentioned earlier. The reliability of these solvers were verified using manual calculations or comparing the results with other solver predictions. Very few studies considered validating the performance and reliability of the hydraulic solver to real life water system. This study aimed to provide a comprehensive hydraulic analysis using the steady-state hydraulic numerical solver applied to an existing network to improve the water system services to the community in Ganatan, Arakan Cotabato. Specifically, this study aims to determine the best optimized WDN model using the selected steady-state hydraulic numerical solver; develop the automated pressure monitoring device (APMD) for remote data observation and develop a computer program in GUI format for the Steady-State hydraulic Numerical Solver. The study is consist of three (3) main components namely; selection of best optimized WDN model; development of pressure automated monitoring device; and development of a Graphic User Interface Platform for the Steady-State hydraulic Numerical Solver. In this study, it is expected that the predictions provided by the numerical solver will be similar to the actual readings obtained from the pressure logs via remote monitoring. Consequently, the hydraulic anomalies of the existing water system will be corrected using the best optimized model that can be produced by the hydraulic solver simulations.

Keywords: hydraulic simulation, numerical solver, control valves, pressure optimization, automated pressure monitoring device

2:10PM - 2:20PM

218 – GIS-Aided Assessment of the Biochemical and Microbial Status of the USM Agricultural Research and Development Center (USMARDC) of the existing Land Use Utilization and Future Management

Jurhamid C. Imlan, Rezin G. Cabantug, Janice M. Bangoy, Marry Grace N. Balbuena, & Jasmin A. Pecho

2:30PM - 2:40PM

219 – USMGEO: University Spatial Mapping and Geographic Information System Portal

Kathleen Mae B. Alucilja, Renel M. Alucilja, Eugene G. Ranjo

ABSTRACT. The USM GEO projects aim to develop a comprehensive system for sharing and networking geographical resources for research purposes at USM, focusing on Geographical Information System applications. The project's objectives include the creation of spatial maps and base maps for USM, the establishment of a Geo Portal, and the development of standards and protocols for creating spatial maps and utilizing GIS resources. A portal has already been developed, with ongoing enhancements. The USM base maps, particularly focusing on boundaries, academic areas, research zones, and production sites were used as training maps for the standardization and development of maps. Moreover, work is in progress regarding standards and policies. The portal is currently undergoing testing and evaluation to ensure it can effectively support standardized GIS practices.

Keywords: Geo Portal, GIS, Maps

2:40PM - 2:50PM

220 – Commercialization of Chevon Food Products and Standardization of Processing Center

Jalaloden B. Marohom

ABSTRACT. The project titled “Establishment of Regional Knowledge Management Hub (KMH) in SOCCSKSARGEN through the RAISE Program is part of the program titled Regional Agri-Aqua Innovation System Enhancement (RAISE) Program. The project helps in improving the access to knowledge generation, sharing, collaboration and informed decision making. Also, it facilitates the improvement of the inventory of knowledge resources in the region by developing one information system and populates and publishes through uploading in e-Library and the Real-Time Monitoring System (RTMS). Moreover, it capacitates consortium member institutions (CMIs) on knowledge management and technology promotion. The initial regional inception meeting successfully initiated key activities and fostered alignment among project leaders and staff. Strategic planning sessions have played a crucial role in assessing progress, addressing challenges, and setting clear objectives for future phases. Regular performance reviews and reporting have ensured diligent monitoring of project deliverables, financial status, and upcoming workshops. These practices uphold transparency and accountability, nurturing a culture of continuous improvement. Capacity building workshops have equipped the consortium member institutions (CMI) with vital skills, reflecting the project's commitment to effective technology promotion and knowledge consolidation. Notably, the Second Quarter Direction Setting and Benchmarking Activity have provided essential guidance to steer the project towards its goals and deliver expected outcomes. Looking ahead, the project remains focused on leveraging collaboration and strategic planning to sustain momentum and maximize its positive impact throughout the SOCCKSARGEN region.

Keywords: knowledge, management, resources, technology, promotion

3:00PM - 3:10PM

221 – Establishment of Instrumentation System Modeling, Assembly and Response Testing (ISMART) Laboratory

Maricel G. Dayaday

ABSTRACT. A state-of-the-art laboratory on the development and testing of technologies on instrumentation and control is being established in the College of Engineering and Information Technology, University of Southern Mindanao. The project intends to bridge the gap between the technological expertise of the academe and the needs of the community and industry for higher yield and productivity.

Keywords: instrumentation, control, laboratory, innovation, system

3:10PM - 3:20PM

222 – A Novel Way of Performing Item Analyses

Ronald Z. Pascual & Augustus Venancio B. Ramos

ABSTRACT. A novel method of performing item analysis is hereby introduced. Among other, a performance index is introduced to be calculated for each item which is derived from the data of count of correct and incorrect responses binned in ten various test-taker groups rank in decreasing order of performance. When compared to Classical Test Theory's tandem difficulty and discrimination indices, the performance index showed remarkable correspondence whereby items with very good tandem CTT indices range also have very high performance index score. Using the comparison, recommended Performance index score was set to rank items as excellent, very good, good, good with revision needed, and discard and check for incorrectness. In addition, Difficulty-50 and Ability-50 indices were also introduced to be calculated and used for compatible analyses item difficulty. Both additional indices also compared well with CTT's difficulty index with R-squared score of 0.992.

Keywords: Item Analysis

3:30PM - 3:40PM

223 – Developing Land Management Options for Diverse Cacao-based system in Mindanao.
Component 1. Effective, Regenerative and Climate Resilient Soil Management Options for Safe and Sustainable Cacao-Based Cropping System in Davao City and North Cotabato

Mel Chrisel A. Sales

ABSTRACT. Cacao production in Mindanao is faced with several challenges to include decline soil productivity, and the impact of climate change which resulted in production supply gap and quality issues. Hence, this project was implemented to provide a scientifically-based mitigation approach through small-holder cacao farmers empowerment in addressing climate

change derived impacts and arising market challenges by providing them with the appropriate cacao farming technologies and capacity to satisfactorily harnessing available local resources towards quality and safe cacao production. The project specifically aims to determine effective, regenerative and climate resilient soil management options for safe and sustainable cacao-based cropping system in Davao City and North Cotabato. To determine the effective, regenerative and climate resilient soil management options for safe and sustainable cacao-based cropping systems, two field experiments were established located in Site 1 - Brgy. Sirib, Calinan District Davao City and Site 2 - USM, Kabacan North Cotabato. The field experiments were conducted in RCBD. In Site 1, there were 7 treatments (farmer's practice, organic fertilizer-OF, lime, coconut husk mulching + OF, coconut and durian husk mulching + OF, ½ recommended rate-RR + OF, RR) employed whilst 5 soil nutrient treatments (control, RR, lime, OF, OF + lime) were employed in Site 2 in two (2) different cropping systems (cacao rubber and cacao-coconut-rubber). In site 1, yield (number of pods) was improved when ½ RR + OF (30 pods) and mulching of coco and durian husk + OF (25 pods) was applied. Soil fertility was improved by the application of amendments, as indicated by the improvement of its chemical properties. Soil pH, OC%, OM%, N% and CEC cmol/kg were improved by coconut husk mulching + OF. In Site 2, soil pH and N% was increased with the application of lime.

Keywords: Soil Management, Climate Resilient, Cropping Systems, Regenerative

3:40PM - 3:50PM

224 – University of Southern Mindanao Futures Thinking for Food Security and Health, Systems, Innovations and Sustainability

Francisco Gil N. Garcia, Edward A. Barlaan & Ma. Teodora N. Cabasan

ABSTRACT. Futures thinking and foresight provide new perspectives for holistic thinking, developing preferred future scenarios, enhancing partnerships, cultivating leadership, and fostering innovative thinking skills. The USM Futures Thinking program aimed to provide directions through Futures Thinking-based capacity building and collaborative initiatives for food security, systems, and innovations in Region 12 state universities and colleges. In USM, leaders and administrators were capacitated on Futures thinking and value creation. In the different colleges, faculty members, office heads, researchers and experts were capacitated in framing the Futures of the academic unit including research, development and extension. In Region 12, consortium member institutes used Futures Thinking in the institution's strategic planning and in strengthening their RDE. This year USM continues the implementation of futures thinking-related initiatives addressing food production, security and sustainability. This program contributes to enhancing the market potential of existing RDE products, standardize ongoing efforts, and develop USM-signature products and technologies for commercialization. On the other hand, the Region 12 Futures Thinking Consortium, led by USM, pursues Halal R&D initiatives.

Keywords: capacity building, foresight, leadership, partnerships, R&D

3:50PM - 4:00PM

225 – Assessment of Durian Clone Variability: A Study on Yield Performance in USM Established Orchard

Janice M. Bangoy

ABSTRACT. This study, titled "Assessment of Durian Clone Variability: A Study on Yield Performance in USM Established Orchard," investigates the variability among durian clones, crucial for enhancing orchard management and optimizing yield in durian cultivation. Durian, often referred to as the "King of Fruits," presents unique challenges due to its diverse clone characteristics. This research addresses these challenges by analyzing multi-season yield performance data, environmental factors, and clone-specific traits.The study utilized a methodology that included data collection on yield performance, continuous environmental monitoring, and statistical analysis. Key activities involved identifying and tagging different clones, measuring fruit yield, and documenting climate, soil conditions, as well as pest and disease occurrences. The objective was to uncover significant yield variations among different clones and to associate specific genetic traits with higher yields.In the initial six months of the study, the durian clonal garden was systematically tagged and cleared of weeds to ensure accurate data collection. During the period from January to May 2024, a drought condition required the implementation of supplemental watering for each tree. Flowering commenced in the second week of May 2024, with harvesting anticipated in the third and fourth weeks of August 2024. Soil samples were collected for baseline analysis, and no fertilizer was applied to establish a control for future interventions.This ongoing research is poised to offer valuable insights into the yield performance of various durian clones in the USM Durian Clonal Garden, which has been operational since 1995.

Keywords: Durian Clone Variability, Yield Performance, Orchard Management, Clonal Garden, Fruit Yield, Climate Conditions, Soil Analysis, Pest Infestation, Baseline Data, Sustainable Cultivation, USM Established Orchard

9:00AM - 9:10AM

301 – Mapping the Future Plate: Evaluating the Spatiotemporal Dynamics of Meso-Level Food Security (MFS) of Cotabato Province in Changing Climate

Romiel John Basan

ABSTRACT. Food security is a critical concern in Cotabato Province, Philippines, particularly in the context of climate change. This study investigates the spatiotemporal dynamics of meso-level food security (MFS) within the province, aiming to provide a comprehensive evaluation of how changing climate patterns impact food availability, accessibility, and stability over time and space. Utilizing a combination of satellite imagery, climatic data, and socioeconomic surveys, this research maps and analyzes the shifts in agricultural productivity, food distribution networks, and community resilience. The study employs advanced geospatial analysis and statistical modeling to identify vulnerable areas and predict future food security scenarios. The findings are expected to inform policymakers, local government units, and stakeholders, offering actionable insights for developing adaptive strategies to ensure sustainable food security in Cotabato Province amidst the challenges posed by climate change.

Keywords: changing climate, future plate, mapping, meso-level food security, spatiotemporal dynamics

9:10-9:20

302 – Dokumentasyong ng Manobo Kalamansig

Radji A. Macatabon, Normie G. Pabinal, Rosemarie R. Sison, & Jovelyn Gesulga

9:30-9:40

303 – Leaving No One Behind: Examining Disability-Inclusive Social Services in Local Government Units and Public Higher Education Institutions (HEIs) in Cotabato Province

Jhon Dave E. Llanto, Lian D. Bagonoc & Victor C. Dapon

ABSTRACT. The United Nations' Sustainable Development Goals (SDGs) emphasize inclusive policies to ensure no one is left behind. Despite these efforts, persons with disabilities (PWDs) often encounter barriers to accessing social services, including education, healthcare, and employment. PWDs include individuals with long-term physical, mental, intellectual, or sensory impairments, which, in interaction with various barriers, may hinder their full societal participation. The Philippines, a signatory to the UN Convention on the Rights of Persons with Disabilities since 2008, has committed to realizing the rights of PWDs and their full participation in society. The Philippine government has developed several policies and frameworks, such as the Magna Carta for Persons with Disabilities (Republic Act No. 7277), aligning with the SDGs and the PDP 2023-2028, prioritizing inclusive development and the empowerment of PWDs. Previous research has highlighted the challenges faced by PWDs, their well-being, and employment issues. However, the effective implementation of these policies remains a challenge, particularly within local government units (LGUs) and public higher education institutions (HEIs), where PWDs' situations are often underrecognized. This

research aims to address this gap by examining the social inclusion needs of PWDs, assessing the physical accessibility of LGUs and public HEIs, and evaluating social service mechanisms and delivery in Cotabato Province. By doing so, this study seeks to foster a more inclusive environment for PWDs, ensuring their rights and needs are fully acknowledged and met.

Keywords: Person with disability (PWD); social inclusion; social services; higher education, LGU, Cotabato Province

9:40AM - 9:50AM

304 – Assessment of the Integration of Gender and Development (GAD) Concepts Across General Education Courses in Selected SUCs in Region XII

April Rose T. Butalid, Estella B. Barbosa & Elangbai B. Dimasingkil

10:00AM - 10:10AM

305 – Program title: Examining input, output and outcome indicators of higher education towards data-driven quality improvement

Francisco Gil N. Garcia, Lawrence Anthony U. Dollente, Willie Jones B. Saliling, Romiel John P. Basan, Jennet P. Mag-Aso, Hazel Ann S. Soriano, Kharlo J. Subrio, Liezl Gray Oria, Marry Grace S. Balbuena, Jessie G. Elarde, & Peny Lane E. Vallejos

10:10AM - 10:20AM

306 – Project Title: PCC's Dairy Box and Family Module: Success Stories, Challenges and Ways Forward - Study 1: The Dairy Box: A Collective Experience of Success and Resilience -Study 2: Impact of PCC's Sustainable Livelihood Program Among Household Beneficiaries in Mindanao Philippines

Glyn B. Gabano-Magbanua, Estella B. Barbosa, Marlyn A. Resurreccion & Anamarie B. Uyangurin

ABSTRACT. Since 2019, the Philippine Carabao Center is intent on the establishment of bufallo-based village enterprise through its Carabao Development Program (CDP). There are two tracks under this program namely, the Accelerating Livelihood and Assets Buildup-Karbawan (ALAB-Karbawan) and the Carabao-based Enterprise Development (CBED). Through ALAB-Karbawan, cooperatives are granted Dairy Box packages while CBED grants Family Module packages to farmer-beneficiaries. This research intends to evaluate the impact of the CDP of PCC by utilizing the Theory of Change and to capture the most significant change in the lives of the beneficiaries. This research determines to answer the following questions: (1) How has the PCC Dairy Box and Family Module Projects changed the lives of its partners and beneficiaries; (2) What challenges were encountered by the partner beneficiaries during the implementation phase of the project; and (3) How can the experience of the beneficiaries influence policy decisions and selection criteria of beneficiaries of the Dairy Box and the Family Module. The research covers CPD beneficiaries in the provinces of Cotabato and South Cotabato. During the first phase of interviews, three farmer-beneficiaries

of the Family Module from Midsayap, Pres. Roxas and Mlang, as well as one cooperative-beneficiary of the Dairy Box were interviewed.

Keywords: Philippine Carabao Center, Carabao Development Program, Dairy Box, Family Module

10:30AM - 10:40AM

307 – [MINSUPALA-USM Kabacan] Assessment of Socioeconomic Status of Communities in the Liguasan Marsh in Cotabato Province

Francisco Gil N. Garcia & Romiel John P. Basan

ABSTRACT. The Liguasan Marsh, a sprawling wetland ecosystem in Cotabato Province, Philippines, is rich in biodiversity and cultural significance. However, the marsh and its surrounding communities face significant challenges, including water pollution, overfishing, habitat and watershed degradation, and various socioeconomic issues. Addressing these challenges is crucial for the sustainable development and transformation of Central Mindanao. This project aims to assess the socioeconomic conditions of those living in the Liguasan Marsh. An explanatory sequential design (ESD) is being employed to collect and analyze data. Based on sample size calculations, 397 household respondents are being surveyed from the municipalities of Tulunan, Kabacan, Pikit, and Mlang. Initial activities, such as coordination meetings and site visits, were conducted at the outset of the project. Data gathering commenced in Brgy. Cuyapon, Kabacan, Cotabato, where initial findings indicated that households are facing significant socioeconomic challenges.

Keywords: Communities, Cotabato province, Liguasan Marsh, socioeconomic status

10:40-10:50

308 – [MINSUPALA-USM KCC] Assessment of Socioeconomic Status of Communities in the Liguasan Marsh in Cotabato Province

Ronielyn F. Pinsoy, Jeconi Joyce T. Paler, Stephen Dave Dupo, Carmee Lyn P. Paylancgo, Dhealyn Decee V. Sabit, Carmee May L. Balneg, Mark Julius Seloterio, Jesabell O. Sambile

ABSTRACT. The project titled "Assessment and Characterization of Socio-Economic Important Water Bodies for Social and Economic Transformation in Central Mindanao" aims to evaluate and describe the significance water bodies in the region with a focus on their socio-economic impact. The study seeks to enhance the understanding of how these water bodies contribute to the livelihoods, social structures, and economic activities of local communities. The methodology includes extensive data collection through initial visits, visual assessments, and surveys in coordination with municipal personnel and local leaders. Tools like Raosoft are utilized for sample size calculations to ensure representativeness and proportional allocation across different sampling sites. The survey questionnaire, translated into Tagalog version for easier understanding among community partners, aims to gather detailed socio-economic information from the communities. Key activities of the project include the regular meetings and training workshops focusing on socio-economic assessment protocols, presentation of the quarterly progress report, procurement of necessary supplies, and coordination with local government units for data collection and Memoranda of Understanding (MOU) signing. The

outcomes of the project will guide policy formulation and community-based strategies, fostering sustainable development and economic transformation in Central Mindanao. Through collaborative efforts with local governments and community leaders, the project aims to create a comprehensive socio-economic profile of key water bodies, ultimately contributing to the region's social and economic growth.

Keywords: Data Collection, Economic activities, Livelihoods, Social structures, Water bodies

11:00AM - 11:10AM

309 – RAISE PROJECT 2. Establishment of Regional Agri-Business Hub (ABH) in Soccsksargen through the Raise Program

Ronald Z. Pascual

ABSTRACT. Economic viability, progress, and sustainability are universal goals for governments globally. Empowering citizens to generate knowledge, develop technologies, and establish startups that evolve into sustainable enterprises is a key strategy. In the Philippines, state colleges and universities play a crucial role in generating innovations to benefit the populace, enhance productivity, and address existing challenges. Despite significant progress in technology generation, adoption and commercialization remain challenging, with a notable gap between research outputs and marketable enterprises. This project aims to bridge this gap by establishing a regional agribusiness hub for business incubation and pre-commercialization of technology in Region 12. The hub will accelerate technology transfer and adoption, offering data-driven, evidence-based support to entrepreneurs, institutions, firms, and researchers. Key activities will include technology assessment, valuation, market research, and business plan development, essential for evaluating technology viability before market adoption. Coordinated with SOCCSKSARGEN Agriculture, Aquatic, and Natural Resource Resources Research and Development Consortium (SOXAARRDEC), the hub will provide comprehensive support to technology generators and potential entrepreneurs. By facilitating business incubation, transfer, and commercialization, the hub will connect technology generation with commercialization, fostering a vibrant innovation ecosystem in Region 12. This will maximize economic benefits and potential in the agri-aqua sectors, contributing to the nation's overall economic transformation.

Keywords: Agri-business Hub, Pre-commercialization Services, Technologies, Business, Agricultural Innovation

11:10AM - 11:20AM

310 – Post-Assessment of the Competence of the Training Graduates of Selected Technical and Vocational School in North Cotabato Offering Rubber Production NCII, Agricultural Crop Production NCII, Rice Machinery Operations NCII, and Organic Agriculture Production NCII

Rezin G. Cabantug, Roy Cabatac & Leizl Gray T. Oria

11:30AM - 11:40AM

311 – Safe Spaces: Fighting Sexual Harassment through Education and Empowerment

Mariz P. Balquin, Rolly C. Sotto & Vicente Delos Reyes

ABSTRACT. This paper presents an overview of an extension program aimed at addressing sexual harassment awareness and self-defense training for university faculty an Security guards. The program involved a comprehensive assessment and training initiative to educate participants on sexual harassment laws and equip them with practical self-defense skills. The initial assessment revealed varying levels of awareness about sexual harassment laws, with only 19% of participants being highly informed. Furthermore, 84% of participants expressed a strong interest in self-defense training, particularly in Ju-Jitsu. The training sessions faced logistical challenges, such as inadequate venues, insufficient mats, and frequent rescheduling due to university activities and the approaching final exams. To address these issues, solutions were proposed, including securing dedicated training spaces, fundraising for additional equipment, and optimizing the training schedule to avoid conflicts. The program demonstrated significant potential to enhance personal safety, increase awareness of sexual harassment, and foster a safer and more empowered community. This abstract highlights the importance of well-organized training programs and the need for institutional support to overcome logistical barriers, ensuring the program's success and sustainability.

Keywords: sexual harassment awareness, self-defense training, logistical challenges and solutions, empowerment, safety Ju-Jitsu Training Interest

11:40AM - 11:50AM

312 – Developing Land Management Options for Diverse Cacao-based system in Mindanao. Component 1. Effective, Regenerative and Climate Resilient Soil Management Options for Safe and Sustainable Cacao-Based Cropping System in Davao City and North Cotabato

Mel Chrisel A. Sales

ABSTRACT. Cacao production in Mindanao faces several challenges, including declining soil productivity and the impact of climate change, resulting in a gap in production supply and quality issues. To address these challenges, a project was implemented to empower small-holder cacao farmers by providing them with appropriate farming technologies and building their capacity to produce quality and safe cacao beans. Specifically, the project component aims to showcase the benefits of different soil management technologies to cacao farmers and others in the industry. Mentoring sessions on cacao production were conducted in Davao City (18 farmer-cooperators) and North Cotabato (12 farmer-cooperators). Farm-to-farm monitoring and evaluation were also conducted in both locations. Additionally, the team organized workshops and training for Information, Education, and Communication (IEC) development resulting in the development and approval of IEC material (leaflet for soil sampling for cacao). The reproduced 4,500 copies of the leaflet and distributed 240 copies to its beneficiaries. The team conducted mentoring activity completion in Davao City, which was attended by two (2) GGGI-BKCF representatives, one (1) Barangay Council of Sirib representative, two (2) Mindanao Development Authority (MinDA) representatives, three (3) CAMP Asia representative, members of the UNORKA Mindanao and the farmer-cooperators of the project. Continuous coordination for knowledge-sharing of land management for cacao in the cacao-producing Region of Mindanao. Overall, the targeted activities of the project are

almost completed and we are preparing for the next phase, which includes conducting knowledge-sharing activities and information dissemination within Mindanao.

Keywords: Cacao, Small-holder, Mentoring Activity, Knowledge-Sharing Activity, IEC material

1:00PM - 1:10PM

313 – Empowering Equity Target Students: Enhancing Access and Success in SUCs in Region XII

Marcos F. Monderin, Romiel John P. Basan, Ronielyn Pinsoy, Lawrence U. Dollente, Estella B. Barbosa, Metche Anne C. Logronio & Vilma M. Santos

ABSTRACT. The Philippines' higher education landscape is undergoing transformation, driven by CHED's vision of accessibility, equity, excellence, and lifelong learning. Republic Act 10931, also known as the "Universal Access to Quality Tertiary Education Act," plays a pivotal role in this transformation by providing for free tuition and other school fees in SUCs and establishing support programs for tertiary education. This legislation underscores the importance of equitable access to higher education for all Filipino students, aligning perfectly with the project's primary emphasis on enhancing the access and success of equity target students. However, a concerning trend on the considerably low participation rate, increasing attrition rate, and various financial difficulties by students in SUCs, especially those considered as equity targets, demands urgent intervention. This project responds to this need by comprehensively understanding the socio-economic profiles and challenges of students in SUCs in Region 12, with a specific focus on enhancing the access and success of equity target students. The project aligns with the strategic vision of the Commission on Higher Education and endeavors to generate data that will inform policy recommendations aimed at fostering universal, quality, and equitable education. Mixed-methods research design using both quantitative and qualitative approaches shall be employed to provide a comprehensive understanding of the various factors influencing access and success in higher education. Data collection methods to be used include survey, document review, and Focus Group Discussions. Statistical analysis and thematic assessments shall be employed to derive comprehensive insights. This project is expected to recommend interventions and enhancements to admission and retention policies in SUCs policies to improve access and success for students, particularly those belonging to equity target groups. These policies are expected to complement, support, and augment the implementation of the Free Higher Education Program, ensuring the provision of quality, equitable, and accessible higher education across SUCs in the country. The project will produce a policy brief as a valuable reference for policymakers, aiming to foster an inclusive and competitive higher education landscape while upholding the principle that education serves as the great equalizer.

Keywords: access and success, admission, completion, equity target students, retention

1:20PM - 1:30PM

314 – BIO-NIHAN para sa Kalikasan in Columbio: Sustainable Initiatives for Biodiversity Conservation

Cromwel M. Jumao-as, Cherie Cano-Mangaoang, Florence Roy P. Salvaña, Bryan Lloyd P. Bretana, & Elvie V. Diaz- SKSU

ABSTRACT. Conservation and protection of biodiversity requires the participation of various stakeholders, not only the academe nor the local government units and national agencies, but rather a concerted effort of local counterparts especially in communities near protected areas. These extension project aimed to capacitate chosen bantay-gubat/parabiologist of Municipality of Columbio by providing technical assistance and skills enhancement training to promote holistic biodiversity conservation through community partnership. One of the components of the extension project is In situ conservation of economically and ecologically important tree species. Preliminary survey revealed the existence of 72 tree species in the four forested areas of Columbio, Sultan Kudarat. 68% of these trees are native while 26% are endemic in the country. Interestingly, 50% of the identified tree species are included to those with conservation issues that requires intervention to prevent further population decline or worst, extinction. Among the 17 species of trees with known conservation issues and are Philippine endemic, Alstonia parvifolia Merr., Astronia apoensis Elmer, Cinnamomum mercadoi Vidal., Dillenia philippinensis Rolfe., Lithocarpus ovalis (Blanco) Rehder., Macaranga grandifolia (Blanco) Merr., Petersianthus quadrialatus, and Shorea contorta are the priority species to be suggested for propagation by the Local Government Unit of Columbio for future tree planting activities. The propagation of such tree species will be in New Bantangan in Columbio, Sultan Kudarat.

Keywords: Bantay-gubat, Biodiversity Columbio, Community, Tree

1:30PM - 1:40PM

315 – USM T.O.U.R.S. (Travel Odyssey: Unveiling Rich Sights)

Meldred F. Samblaceño, Dianne Cristel M. Basilio & Rosyell Angelo N. Piosca

ABSTRACT. The University of Southern Mindanao's College of Human Ecology and Food Sciences has launched an extension project titled "USM T.O.U.R.S. (Travel Odyssey: Unveiling Rich Sights)" spearheaded by Meldred F. Samblaceño, Rosyell Angelo N. Piosca, and Dianne Cristel M. Basilio. This initiative aims to promote local tourism and provide practical learning experiences for students in tourism-related courses. The project started with a presentation to the Department of Tourism and Travel Management faculty, followed by developing promotional materials crafted by students and refined by experts. Despite initial hesitancy from MASTS delegates during the distribution phase, personalized explanations from students successfully generated interest in the tour packages. The project's pilot testing, conducted from November 23 to 25, 2023, included visits to Museo Kutawato, M Dulay's Vineyard, and the USM main campus, receiving positive feedback and identifying areas for improvement. A mock tour on May 4, 2023, further ensured logistical readiness and highlighted the importance of early bookings. The USM T.O.U.R.S. project has showcased the Cotabato Province's cultural and natural heritage and provided valuable hands-on experience for students. As the project progresses, it aims to become a key player in local tourism and a source of pride for the university, reflecting its commitment to education and community engagement.

Keywords: Community-based Tourism, Tourist Sites, Tourism Promotion, Farm Tourism, Educational Tourism

1:40PM - 1:50PM

316 – CBDEM - Delicacies: Capacity Building, Demonstration and Enterprise Development of Maguindanaon Delicacies

Roy B. Gacus, Francisco Gil N. Garcia, Esmaira G. Gunsayan, April Geraldine M. Quiñonero, Analyn A. Gonzales & Irving T. Fajarito, Jr.

ABSTRACT. The CBDEM-Delicacies initiative aims to bridge the gap between academic research and real-world applications by translating the findings of the "Maguindanaon Food Products and Delicacies: Standardization and Promotion for Commercialization" project into tangible outcomes. This initiative focuses on capacity building, demonstration, and enterprise development to empower Maguindanaon communities in Kabacan, Cotabato. By equipping individuals with the skills and knowledge needed to produce and market Maguindanaon delicacies, the project seeks to enhance revenue, production, livelihood development, and cultural heritage preservation. It also promotes local foods and traditional skills, contributing to food security and dietary variety. On a larger scale, the initiative supports regional economic growth and diversification by fostering micro and small business development, job creation, and tourism through unique culinary experiences. The project involves comprehensive activities, including needs assessment, training workshops, business plan development, and community engagement, ensuring its successful implementation and positive impact on the community. Keywords: Maguindanaon delicacies, capacity building, enterprise development, needs assessment, regional economic growth.

Keywords: Maguindanaon delicacies, capacity building, enterprise development, needs assessment, regional economic growth

2:00PM - 2:10PM

317 – Scholars Presenting Advanced Research Knowledge (SPARK)

Mary Joy S. Canolas & Allan C. Facurib

2:10PM - 2:20PM

318 – Promoting Local Upliftment Through Sustainable Corn Initiatives (CORN PLUS)

Nenita E. Olero & Janice M. Bangoy

2:30PM - 2:40PM

319 – Collaborative Networking and Engagement for Community Transformation (CONNECT)

Janice M. Bangoy, Jaypee P. Monfort, Ritchel O. Torres & Diether M. Barro

2:40PM - 2:50PM

320 – SMART SNACKS: Creating Innovative & Affordable Snacks with Healthy Options

Janice M Bangoy, Maybell S. Martin, Leila S Moscoso & Leizl Gray Oria

3:00PM - 3:10PM

321 – Building Capacities of Barangay People for Community Development (BALABAG)

Dhealyn Decee V. Sabit, Ronielyn F. Pinsoy, Matt Edison G. Alcantara, Jenny B. Mamacus, Niño Chelvin E. Sabit & April Rose B. Flores

ABSTRACT. The project endeavors to provide skill and livelihood training and mentorship to the beneficiaries in Barangay Balabag. Specifically, beneficiaries may be able to gain technical-vocational skills in technology such as bread and pastry, food processing, electrical installation, aircon servicing, welding and fabrication, sanitation, and proper waste disposal. Beneficiaries of the project could apply skills for income generation, employment, and proper waste maintenance as the projects' impact. The implementation involves planning and preparation, the purchase of materials and delivery, the preparation of survey instruments, data gathering, data analysis, and the designing and development of IEC materials and modules. The needs assessment survey result revealed the following frequencies: sixty three for Bread and Pastry Production; seventy nine for Food Processing; twenty for Engine Troubleshooting; twenty three for Basic Welding and Fabrication; thirty two for Plumbing, Carpentry and Masonry; twenty five for Electrical Installation; twenty nine for Fablab training in Handicraft and Pattern Development. The project team has initially conducted an outreach activity as part of the Integration Anniversary of USM-Kidapawan City Campus. The event ended with the distribution of school supplies and food to the pupils and some teaching materials for the teachers. The children also enjoyed and gained prizes through a game facilitated by the faculty of the college. The event served as an expression of the college's commitment to give back to the community as a shared goal with the campus.

Keywords: Building capacities, community development, skills training, food processing, masonry with carpentry and plumbing

3:10PM - 3:20PM

322 – Towards a Healthy Well-Being: Psychoeducation and Psychosocial Intervention for High Scoring High School Students in DASS21 in Kabacan, Cotabato

Myka Ivana P. Sorilla, Judy Ann G. Villafranca, Khristine Joy B. Garcia, Maria Angelika T. Balungay, & Zenell Winnejoy B. Ligahon

ABSTRACT. This paper presents an overview of an extension program aimed at addressing the psychosocial wellbeing concerns of highschool students in National Highschools in Kabacan, Cotabato. The program involves the assessment of their mental health conditions, the development and utilization of modules, and the turning over of materials and a referral system. The implementation of this program is underway and will be carried out in the next few months.

Keywords: Mental Health, depression, anxiety, stress, high school students

3:30PM - 3:40PM

323 – Infograp ng mga Impormasyon Hinggil sa Halaga, Tamang Pamamaraan at Benepisyo ng Pagpapasuso: Isang Teknikal Na Pagsasalin sa Wikang Teduray

Radji A. Macatabon, Carlo Jason D. Dela Cruz & Roselyn M. Clemen

Closing Program

Commercial Building
July 25, 2024
4:30 PM

SYNTHESIS PRESENTATION SESSION 1	**KHARLO SUBRIO** EPS I
SESSION 2	**RHENALI BELLO** Faculty, CBDEM
SESSION 3	**ANALYN GONZALES** Faculty, CBDEM
PRESENTATION OF OUTPUT FOR FACULTY	**LYDIA C. PASCUAL** RDO, Director
PRESENTATION OF OUTPUT FOR USMARDC	**JURHAMID C. IMLAN** Director, USMARDC
PRESENTATION OF OUTPUT FOR EXTENSION	**GLYN G. MAGBANUA** Director, ESO
PRESENTATION OF RDE OUTPUTS	**DEBBIE MARIE B. VERZOSA** Vice President, RDE
ACCEPTANCE OF RDE OUTPUTS	**FRANCISCO GIL N. GARCIA** SUC President IV
CLOSING MESSAGE	**FRANCISCO GIL N. GARCIA** SUC President IV
EMCEE	**JOHN LEONARD LATIDO**

Singing of USM Hymn

VISION

USM envisions upholding its status of excellence in Research and Development by continuing to be the pioneer source of technology and information that are on track towards poverty reduction, food security, and global competitiveness for cohesive and sustainable development among its multi-socio-cultural clienteles.

MISSION

To put into operation a system to undertake multi-disciplinary approach for R & D activities to ensure that technologies and information generated can address the prevailing concerns and issues in the local, regional and national levels for sustainable development.

GOALS

- Improve the system with scientific excellence through collaborative and interdisciplinary R&D activities that are anchored on the University's vision/mission;
- Conduct researches and generate technologies that could provide solutions and address the local, regional, and national concerns and issues;
- Provide a mechanism to ensure that research results be effectively and efficiently delivered to the clients for utilization and commercialization; and
- Build up resource generation facilities for continuous and sustainable R&D programs that geared towards ensuring food security, global competitiveness, socio-cultural responsiveness that eventually improve the quality of life of the clienteles.

MID-YEAR IN-HOUSE REVIEW
July 25, 2024